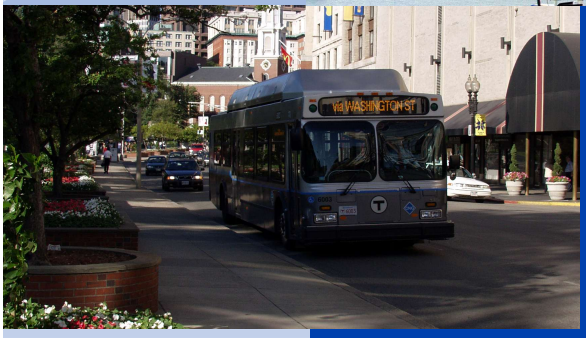
PLAN 2004

Regional Transportation Plan 2004–2025 of the Boston Region MPO



REGIONAL TRANSPORTATION PLAN 2004–2025 OF THE BOSTON REGION MPO

SEPTEMBER 11, 2003

Prepared by the Central Transportation Planning Staff for the Boston Metropolitan Planning Organization (MPO), which is composed of:

Executive Office of Transportation and Construction

City of Boston

City of Everett

City of Newton

City of Salem

Federal Highway Administration

Federal Transit Administration

Massachusetts Bay Transportation Authority

Massachusetts Bay Transportation Authority Advisory Board

Massachusetts Highway Department

Massachusetts Port Authority

Massachusetts Turnpike Authority

Metropolitan Area Planning Council

Regional Transportation Advisory Council

Town of Bedford

Town of Framingham

Town of Hopkinton

THE BOSTON METROPOLITAN PLANNING ORGANIZATION REGION

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1

INTRODUCTION

OVERVIEW

The Regional Transportation Plan is the long-range, comprehensive transportation planning document for the Boston region. The region encompasses 101 cities and towns from Topsfield to Duxbury and Boston to Marlborough (see Figure 1-1). This is the area in which transportation planning is the responsibility of the Boston Region Metropolitan Planning Organization (MPO), as explained in the following section. Covering 1,405 square miles, it makes up about 18% of the state's land area; however, with over three million residents, it has 48% of the state's population.

The Plan defines an overarching vision of the future, establishes goals and policies that will lead to the achievement of that vision, and allocates projected revenue to transportation programs and projects in order to implement those goals and policies. Fundamentally, the Plan is about making choices for the future of the metropolitan area—choices about local and regional land use, choices about where to allocate our limited transportation resources, and choices about the type of future we wish to see for our region and, by extension, the commonwealth. In accordance with applicable federal planning regulations, the Plan addresses surface transportation issues only.

The Plan's twenty-two-year scope allows it to discuss the transportation network's future broadly. Only projects designated as regionally significant are specifically referenced in the Plan. The term "regionally significant" refers to projects required by federal regulations to be included in the travel demand model for air quality conformity purposes—generally, any project that adds capacity to the regional transportation network. For a more detailed explanation of the types of projects that must be included in the model, see Appendix I, Air Quality Conformity Determination.

Most of the transportation programs and projects that will be funded in the next twenty-two years do not add capacity to the transportation system and are, therefore, not specifically identified in the Regional Transportation Plan. These projects are primarily operations and maintenance projects. Nevertheless, when it comes time to allocate funds for these projects in the Transportation Improvement Program, they will be selected based upon how well they implement the goals and policies adopted in the Plan.

FIGURE 1-1
MPO Region

THE MPO STRUCTURE

The Boston Region Metropolitan Planning Organization (MPO) is responsible for the development of the Transportation Plan. It conducts transportation planning in its region for a variety of transportation modes and facilities. By bringing together representatives from local, regional, state, and federal entities and a public advisory committee, MPO decision-making occurs in an environment that is sensitive to the diverse range of interests and concerns that exist in the Boston region.

Federal law establishes requirements and guidelines for transportation planning in urbanized areas. In order to be eligible for federal transportation funding, an area must maintain a continuing, cooperative, and comprehensive (3C) transportation planning process. Section 134 of the Federal Aid Highway Act and Section 5303 of the Federal Transit Act, as amended, establish these planning requirements. The Boston Region MPO is responsible for carrying out the 3C process in its area.

The MPO is a cooperative board of fourteen voting members:

- Executive Office of Transportation and Construction (EOTC)
- Massachusetts Bay Transportation Authority (MBTA)
- Massachusetts Bay Transportation Authority Advisory Board
- Massachusetts Highway Department (MassHighway)
- Massachusetts Port Authority
- Massachusetts Turnpike Authority
- Metropolitan Area Planning Council (MAPC)
- City of Boston
- Six elected municipalities from the Boston region; currently:
  - City of Everett
  - City of Newton
  - City of Salem
  - Town of Bedford
  - Town of Framingham
  - Town of Hopkinton

The Federal Highway Administration (FHWA), the Federal Transit Administration (FTA), and the Regional Transportation Advisory Council also participate on the MPO in a nonvoting capacity as advisory members.

A MEETING OF THE BOSTON REGION MPO

PLAN DEVELOPMENT

The federal transportation planning regulation (23 CFR Part 450.322) requires the MPO to develop a regional transportation plan at least every three years. In addition, the FHWA and the FTA triennially review the planning process of each metropolitan planning organization. The Boston Region MPO adopted the 2000–2025 Transportation Plan in January 2001. On March 15, 2001, the two federal agencies submitted their report on the planning review of the MPO. The MPO planning process was recertified, subject to the completion of five corrective actions, which included the issuance of an updated Transportation Plan implementing improvements to the MPO's approach to environmental justice. Completion of this corrective action was required on or before March 15, 2002.

Updating the Transportation Plan also provided the MPO with an opportunity to improve upon the work undertaken during the development of the 2000–2025 Plan. The MPO conducted an

extensive public outreach process to solicit additional public comments regarding the guiding policies of the Plan, project selection, and environmental justice issues. The 2000–2025 Transportation Plan Update (Plan Update) was adopted by the MPO on March 14, 2002, and submitted to FHWA and FTA. FHWA and FTA responded in May 2002, lauding the work accomplished by the MPO since the 2001 submission but noting some continuing issues related to environmental justice. They required the completion of two additional work products.


ROUTE 109

The first work product was an Addendum to the Plan Update, documenting conclusions from the Plan Update's environmental justice assessment and clearly relating those conclusions to the project selection process. The Addendum was adopted by the MPO and submitted to FHWA and FTA in September 2002. The second work product was a work scope for a systems-level analysis of environmental justice issues, derived from effective practices employed by other MPOs. This work scope was also submitted to FHWA and FTA in September 2002. The tasks performed under this work scope have been completed to inform this iteration of the Regional Transportation Plan. A full discussion of this process and the activities completed under the work scope is provided in Chapter 6, Environmental Justice Assessment of the Transportation System.

The 2004–2025 Regional Transportation Plan builds on the work performed over the past two years. The Plan Update completed last year drew upon an extensive public outreach program that solicited input from the public in November 2001 on guiding policies, land use policies, and projects and in February 2002 on the draft Plan. The MPO met regularly with the Regional Transportation Advisory Council (the public advisory group to the MPO), the MPO's Environmental Justice Committee, and the MAPC subregional groups during the development of the Plan Update. In addition, the MPO received over 100 written comments from municipalities, elected officials, agencies, organizations, committees, and individuals, all of which were considered for inclusion in the Plan Update. The 2004–2025 Plan includes a review of the projects included in the previous Plan, continued environmental justice efforts as outlined in the work scope developed in September 2002, a financial analysis, and an air quality conformity determination for the final set of projects.

RELATIONSHIP TO OTHER PLANNING DOCUMENTS/INITIATIVES

The Boston MPO is required to develop other documents as part of the 3C transportation planning process. These documents include:

- The Unified Planning Work Program
- The Congestion Management System report and planning studies
- The Transportation Improvement Program

Other documents or initiatives considered in the development of the Regional Transportation Plan are:

- The Program for Mass Transportation
- Legal commitments

Brief descriptions of all of the above and their relationship to the Regional Transportation Plan are provided below.

Unified Planning Work Program

The annual Unified Planning Work Program (UPWP) describes transportation planning studies to be undertaken by the MPO and other entities in the Boston region during a given fiscal year. The UPWP is intended to serve two purposes. The first is to provide information to government offi-

cials, local communities, and the general public about all of the transportation planning studies that are expected to occur in the region. The second is to provide complete budget information to federal and state officials about the expenditure of federal funds for those planning studies that will be carried out by the MPO.

The planning studies in the UPWP are an important source of ideas that may evolve into projects that will eventually be included in the Regional Transportation Plan. Likewise, ideas received during the public outreach process for the Plan may lead to studies included in the UPWP.

The Congestion Management System

The purpose of the MPO's Congestion Management System (CMS) is to improve the mobility of residents and visitors in eastern Massachusetts. The CMS provides decision makers with information about transportation system performance and with strategies to improve service. The CMS is a two-part process. First, the CMS report locates mobility concerns and identifies what planning studies, if any, may be called for. Subsequently, CMS planning studies address mobility concerns. The CMS report and associated planning studies, funded under the UPWP, help in the selection of projects for the Plan and the Transportation Improvement Program.

Transportation Improvement Program

The Transportation Improvement Program (TIP) is a multimodal program of transportation projects that is consistent with the policies and goals of the Regional Transportation Plan. The TIP describes and prioritizes transportation projects expected to be implemented during a three-year period. It contains a financial plan showing the revenue source or sources, current or proposed, for each project. In order to be eligible to receive federal funds, a project (highway or transit) must be programmed in the current fiscal year's TIP. In addition to the federally funded projects, most highway projects funded with state transportation money are also included in the TIP in the Boston region. Before they can be included in the TIP, all regionally significant projects must also be included in the Plan. One function of the TIP is to serve as a tool for monitoring progress in implementing the Plan.

THE SILVER LINE, OPENED JULY 2002

Program for Mass Transportation

The Program for Mass Transportation (PMT) is the long-range, twenty-five year capital program of the MBTA. The objective of the PMT is to identify and prioritize projects that will result in a cost-effective mass transit system that serves the greatest number of passengers while furthering environmental, economic development, and environmental justice goals. The MBTA adopted a new PMT in May 2003. The MPO used the PMT to prioritize transit projects for inclusion in the Regional Transportation Plan.

Legal Commitments

Several transportation projects are legal requirements that EOTC or another transportation agency must complete within a certain time frame. The legal commitments that have the greatest impact on planning in the Boston region are those pertaining to the State Implementation Plan (SIP) and the Central Artery/Tunnel project.

The Clean Air Act requires states with one or more regions that do not meet federal air quality standards, such as Massachusetts, to produce a SIP. The SIP describes the efforts that the state has made or proposes to make or study to reduce levels of ozone and carbon monoxide. Massachusetts is required to produce a SIP, and EOTC and other transportation agencies including MassHighway, the MBTA, the Massachusetts Turnpike Authority, and the Massachusetts Port

Authority are required to implement the transportation projects that are included in the SIP.

Central Artery/Tunnel commitments are the result of an agreement entered into by the Department of Environmental Protection (DEP) and EOTC during the approval process for the project. This agreement was recently reviewed and updated with revised implementation schedules in an Administrative Consent Order between DEP and EOTC.

As a matter of policy, the MPO includes all legal commitments related to the SIP and the Consent Order in the Regional Transportation Plan.

CHAPTER

2

THE REGION AND ITS TRANSPORTATION SYSTEM: EXISTING CONDITIONS

The MPO region consists of 101 cities and towns in eastern Massachusetts encompassing approximately 1,405 square miles. The region falls roughly within the twenty-mile radius extending from the city of Boston to the communities that abut Interstate 495. The Greater Boston area provides an urban setting rich in history and waterfront vistas. Inland, the region offers over twenty-five state forests and parks, as well as numerous rivers, lakes, and ponds. Forests make up 39% of the area, with water, wetlands, and open space contributing another 11%. The region is bordered on the east by approximately 550 miles of coastal waterfront and the Boston Harbor Islands National Park.

POPULATION

According to the 2000 U.S. census, the MPO region has a population of just over 3 million residents and contains approximately 1.2 million households, yielding a regional average of 2.47 persons per household. The 101 communities that comprise the region are quite diverse (see Table 2-1), ranging from the relatively rural communities such as Essex and the suburban community of Nahant to the urban centers of Boston and Cambridge. These communities and the persons who reside within their boundaries have different transportation needs requiring solutions uniquely designed to fit their diverse demographic, cultural, and environmental situations.

TABLE 2-1
A Comparison of the Five Least Populated Communities and the Five Most Populated Communities in the MPO Region

	Population	Households	Pop./HH	Square Miles	Pop./Sq. Mi.
Essex	3,267	1,313	2.49	14.28	229
Nahant	3,632	1,629	2.20	1.06	3,426
Bolton	4,148	1,424	2.91	20.12	206
Sherborn	4,200	1,423	2.95	16.1	260
Wenham	4,440	1,285	2.70	8.12	547
Boston	589,141	239,528	2.31	49.40	11,926
Cambridge	101,355	42,615	2.03	7.16	14,156
Lynn	89,050	33,511	2.62	11.45	7,777
Quincy	88,025	38,883	2.22	16.70	5,271
Newton	83,829	31,201	2.51	18.19	4,609
Regionwide	3,066,394	1,197,397	2.47	1,405	2,182

EMPLOYMENT

The 2000 U.S. census indicates that the MPO region employed 1,875,850 persons in 2000, a 52% increase in the number of jobs from 1970. The majority of these jobs are in the urban core of the region, with the cities of Boston and Cambridge continuing to be the primary employment centers. However, suburban job growth outpaced that of the urban core over the past 30 years, as shown in Table 2-2.

The rate of job growth outpaced that of population growth, widening the gap between available jobs and the labor force needed to fill them. This led to some of the new jobs in the Boston region being taken by persons living outside the region. This trend is likely to continue and will require collaborative efforts among the metropolitan planning organizations of eastern Massachusetts, southern New Hampshire, and Rhode Island.

Rapid expansion of employment in the last 25 years affected the transportation system in two major ways:

- The transportation system needed to become more extensive to cover the increasing needs of under-served communities.
- Transportation system usage became more concentrated during peak periods of commuting, putting increasing strain on the capacities of transportation facilities.

LAND USE

Between 1991 and 1999, the share of developed land in the MPO region grew by 2.5% which averages out to about 7.6 acres a day. The majority of the new land consumption was for single-family housing. Most of this development took place on formerly agricultural and forested lands. Table 2-3 shows the changes in land use in the region between 1991 and 1999. The majority of land being developed for residential, industrial,

TABLE 2-2
Employment Growth in the MPO Region

Area	Employment 1970	Employment 2000	Change	% Change
Inside Route 128	685,100	891,850	+206,750	+30%
Outside Route 128	545,300	984,000	+438,700	+80%
Region	1,230,400	1,875,850	+645,450	+52%

TABLE 2-3
Changes in Land Use (1991-1999)

Land Use	1991 *(sq. mi.)*	1999 *(sq. mi.)*	% Change
Residential	471	503	+7%
Commercial	40	42	+5%
Industrial	36	38	+6%
Open Space	80	79	-1%
Forests	558	536	-4%
Crop Land/Pasture	54	47	-13%

ROUTE 128, BRIMBAL AVENUE IN BEVERLY

and commercial uses was located along the Route 128 and I-495 corridors.

Although land use is controlled at the local level, a number of initiatives related to the management of growth have been implemented at the state level. The Executive Office of Environmental Affairs (EOEA) provided funds for buildout analyses of all communities in Massachusetts. These analyses allow communities to see what would happen if all of their remaining undeveloped land were developed in accordance with current local zoning. This helps communities in considering issues connected with future development.

The Commonwealth has implemented other growth planning guidelines:

- The Massachusetts Environmental Policy Act of 1977 requires all agencies of the Commonwealth to determine the impact on the natural environment of all works, projects, or activities conducted by them and to use all practicable means and measures to avoid or minimize identified environmental harm.
- An Executive Order on Planning for Growth was issued by the governor in April 1996. It declared that the Commonwealth should actively promote sustainable development in the form of (a) economic activity and growth supported by adequate infrastructure without sacrificing environmental quality and resources and (b) infrastructure development designed to minimize adverse environmental impacts from economic activity. EOEA established the program for buildout analyses under this mandate.
- Executive Order 418 works from the buildout analyses by directing EOEA, the Department of Housing and Community Development, and EOTC to provide funds to assist the communities in planning for housing, open space, economic development, and transportation.
- The Community Preservation Act enables municipalities to establish a municipal Community Preservation Fund by local referendum. The fund is collected as a surcharge on local property taxes (up to 3%), and it receives matching state funds. Monies can be used for open space, historic preservation, and moderate-income housing. As of May 2003, 25 of the 101 communities of the Boston MPO region had created Community Preservation Funds.
- Areas of Critical Environmental Concern, identified by EOEA, contain concentrations of highly significant environmental resources. Any transportation project constructed in or near an Area of Critical Environmental Concern must follow regulations to alleviate negative impacts.

In addition, MAPC coordinates a Concentrated Development Centers (CDC) program in the Boston region. CDCs are areas designated to encourage high-density development near existing public facilities such as transit, sewer and water systems, and parks and other recreation resources. Transit-oriented development provides an opportunity to link transportation and land use during the development phase.

As mentioned earlier, land use is primarily controlled at the municipal level, while transportation policy is promulgated at the regional and state levels. The Boston Region MPO, as a regional transportation forum, promotes a consensus-building process by which limited federal transportation funds may be allocated to the most needed and regionally significant projects.

EXISTING TRANSPORTATION SYSTEM

The transportation system in the MPO region is an extensive collection of roads, transit services, bicycle routes, pedestrian facilities, and ferry routes that work as an integrated system throughout the 101-community MPO region and beyond. The following sections describe each of the modes as they exist today.

CENTRAL ARTERY NORTHBOUND

Roadways

The Roadway System

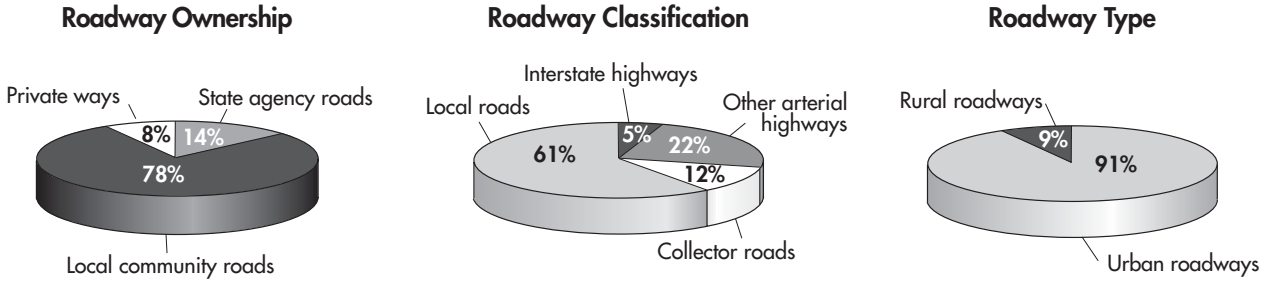
The region's roadway system is comprised of interstate highways, other arterial highways, collector roads, local roads, and bridges. There are 23,233 lane miles in the region. Regionwide, there are 6,296 miles of arterials, including 1,148 miles of interstate; 2,811 miles of collector roads; and 14,126 miles of local roads. Arterials (which include interstates, freeways, and expressways) provide a high level of mobility at a relatively fast speed for long uninterrupted distances with limited access. Collector roads provide a lower level of mobility than arterials, with lower speeds and shorter distances between access points; they connect local roads with arterials and provide access to abutting land uses. Local roads provide a high level of access to abutting land but limit mobility.

Ownership and maintenance responsibilities for these roadways vary among local, state, and federal entities. The roadway classification, however, does not correlate to ownership. Roads and streets are grouped into functional systems according to the types of service they provide. Figure 2-1 shows the breakdowns of roadway ownership, classification, and type in the Boston region.

The largest and most complex roadway project in United States history, the Central Artery/Tunnel project in Boston, is under the control of the Massachusetts Turnpike Authority. The project, which will improve mobility in the highly congested downtown Boston area, is scheduled for completion in April 2005.

MassHighway has recently formed a task force that examines how highway projects impact historic and rural areas. The goal of the task force is to improve the way in which MassHighway designs, constructs, and reviews projects in these sensitive areas. In response to concerns about the impacts of the state's roadways on the communities they traverse, the governor has announced a "Communities First" initiative. An advisory committee is to review and revise the state's highway design manual. MassHighway will work closely with communities as policy implementation of this initiative continues.

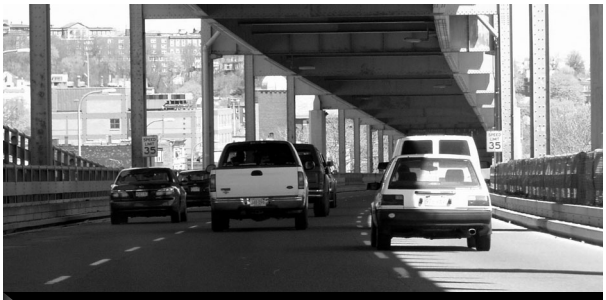
FIGURE 2-1
Breakdown of Roadway Ownership, Classification, and Type



Bridges

There are 1,516 bridges in the MPO region. MassHighway's statewide bridge management system classifies each bridge in the state into one of three categories:

1. The bridge meets standards.
2. Functionally obsolete – The bridge fails to meet current traffic demands or highway standards such as bridge width, traffic volume, or condition.
3. Structurally deficient – Deterioration has reduced load-carrying capacity and is an indication that reconstruction is, or may be, necessary.



LOWER DECK OF THE TOBIN BRIDGE

Safety

Massachusetts has one of the lowest highway fatality rates in the nation: its rates for fatalities per licensed driver and fatalities per registered vehicle are approximately half of the national rates. One contributing factor is the effort the Commonwealth makes to identify and correct high-crash locations. The state annually assesses crash data to determine which intersections might be candidates for remedial measures. MassHighway tracks crash locations as reported in state and local police reports and in operators' accident reports. Table 2-4 shows the top twenty-five high-crash locations within the region, along with the projects currently in the design or construction phase that will address the associated traffic safety issues.

Congestion

There are two types of congestion that affect the region's highway network, mostly during the peak periods of travel: recurring congestion and nonrecurring congestion. In most cases, recurring highway congestion is caused by insufficient capacity on highway segments (i.e., too few traffic lanes, lack of lane continuity, etc.) or traffic flow turbulence at locations where vehicles merge, diverge, and weave across lanes to change direction (i.e., interchanges, access and egress points). Nonrecurring congestion is due to crashes and other traffic incidents (e.g., disabled vehicles) that impede mobility and cause delays.

Programs to Improve Mobility in the Region

Currently there are a number of programs being implemented to improve roadway mobility. A brief summary of these programs is provided below.

Congestion Management System

The MPO maintains a Congestion Management System (CMS) that identifies mobility problems and possible solutions. This system can be used by decision makers for project planning, priority setting, and programming. The CMS is a two-part sequential process documented in a CMS report and CMS planning studies. The report identifies problems and the planning studies recommend improvements that are considered in the development of the Transportation Plan and TIP. Problems of mobility are also identified by the ongoing CMS monitoring program, planning studies, and public comments.

Recommendations and projects that are implemented from the CMS program include the following:

Freeways and Expressways

- Measures to reduce recurring congestion along highway segments include correction of existing inconsistencies in travel-lane continuity and increasing the person-throughput of

TABLE 2-4
Top 25 Crash Locations in the MPO Region, 1997–1999

City/Town	Crash Location	Total Crashes	Weighted* Average	Relevant Project and Status
Reading	Interstate 95 @ Interstate 93	678	1618	MassHigway Planning Study underway
Revere	Rte. 1 (Cutler Hwy) @ Rte 60 (Copeland Cir)	466	1335	Part of Rte. 1 realignment future EIR
Somerville	Rte. 38 (Mystic Ave) @ Interstate 93	415	1152	FY 2004 TIP, Supplemental List, #600831
Boston	I-90 (MassPike) @ I-93 S.E. Xway	461	1029	Under construction (Central Artery)
Saugus	Rte. 1 @ Walnut St (Rte 129)	350	958	FY 2004 TIP Supplemental List, # 601513
Boston	Rte. 3, Leverett Cir.	393	894	Under construction (Central Artery)
Braintree	Granite St. (Rte. 37) @ Interstate 93	313	845	FY 2004 TIP, Supplemental List #603134
Medford	Rte. 16 (Mystic Valley Pkwy.) @ the Fellsway (Rte. 28)	343	815	
Danvers	Rte. 1 (Newbury Street) @ Rte. 114 (Andover St.)	316	792	FY 2004 TIP, Supplemental List # 600921
Canton	Interstate 95 @ Interstate 95	295	779	MassHighway's EIR is scheduled to begin in 2003
Woburn	Interstate 95 @ Washington St.	301	769	Part of MassHighway I-93/I-95 Planning Study
Waltham	Interstate 95 @ Winter St.	368	768	MassHighway Planning Study underway
Medford	Rte. 16 Connector @ Interstate 93	295	727	
Revere	Rte. 1A, Bell Cir.	243	695	MassHighway EIR underway
Weston	I-90 (MassPike) @ Interstate 95	378	686	
Burlington	Middlesex Turnpike @ Interstate 95	280	685	
Boston	I-93 (Pulaski Skyway) @ Massachusetts Ave.	263	675	Under construction (Central Artery)
Quincy	Furnace Brook Rotary @ Interstate 93	236	668	
Woburn	Montvale Ave. @ Interstate 93	261	657	
Boston	Rte. 1 Temporary Ramp @ Interstate 93	246	618	Under construction (Central Artery)
Weymouth	Rte. 18 (Main St.) @ Rte. 3 (Pilgrim Hwy.)	232	616	FY 2004 TIP Project, Design and Permitting Work
Boston	Charles Cir. @ Rte. 28 Embankment Rd	279	615	
Boston	I-93 Dewey Square Tunnel @ I-93 S.E. Xway	254	610	Under construction (Central Artery)
Saugus	Main St. @ Rte. 1	206	610	
Saugus	Essex St. @ Rte. 1	205	601	

** Weighted average based on crash severity (property damage, personal injury and fatalities).*

the highway by the maintenance and monitoring of high-occupancy-vehicle facilities.

- Delay reduction and safety improvement at interchanges require the redesign and construction of on- and off-ramps that are currently substandard, rebuilding of ramps and entire interchanges, or construction of new interchanges as necessary.
- Nonrecurring congestion requires effective incident management involving the detection, verification, response to, and removal of highway incidents. Incident management is the coordinated, preplanned use of human and technological resources to restore full capacity after an incident occurs, and the provision of information to motorists until the incident is cleared. Key functions for a successful incident management program include traffic surveillance, traffic operations centers, traveler information, and other supportive Intelligent Transportation System programs and services (see below). Incident management in the MPO region is operated by MassHighway in coordination with other state agencies that have emergency response responsibilities.

Arterials and Collector Roads

Boston and the Inner Suburbs

- Strict enforcement of existing parking regulations
- Operational improvements and traffic management strategies including signal upgrade and coordination programs, adaptive control traffic signal priority systems, pedestrian signals, and access management programs
- Traffic signal priority for transit

Outer Suburbs

- Downtown parking management and traffic circulation
- Traffic signal coordination
- Left-turn bypass opportunities at unsignalized locations
- Intersection and traffic signal upgrades
- Sidewalks and crosswalks
- Access management

A more detailed discussion of the Boston Region MPO's congestion management strategy is provided as Appendix A.

Measures to Increase Automobile Occupancies and Efficiencies

The member agencies of the MPO have implemented numerous measures that increase vehicle occupancy, help in relieving congestion, or allow for a more efficient use of the roadway network. These measures fall under the broad categories of Transportation Demand Management (TDM) and Intelligent Transportation Systems (ITS). TDM measures include a wide range of strategies such as promoting ride-sharing, allowing for flextime or alternative work schedules, and subsidizing the cost of travel by non-single-occupancy vehicles. Congestion can be reduced not only by removing vehicles from the roadway, but also by getting them through toll booths more efficiently and by letting drivers know of congestion so they can plan alternative routes or times for travel. Existing programs are described below.

Intelligent Transportation Systems

Intelligent Transportation Systems (ITS) involve the integration of technology in the management of the operation of transportation facilities. The MPO has participated in the development of ITS activities since 1992. Boston was one of the first cities to complete an FHWA-sponsored metropolitan area Early Deployment Plan for ITS in 1993.

FAST LANE

MassHighway is currently developing an ITS architecture for metropolitan Boston. The final product will conform to the National ITS Architecture, as required by section 5206(e) of the 1998 Transportation Equity Act for the 21st Century (TEA-21). The intent of this work is to help transportation agencies eliminate duplication, reduce design costs and project development time; facilitate efficient system expansion, improve safety and security, facilitate deployment of new technologies, and lower system life cycle costs.

MassHighway, the Massachusetts Turnpike Authority, the Massachusetts Port Authority, and the City of Boston currently monitor road conditions and traffic flow on major highways and intersections using fixed equipment such as loop detectors and wireless communications. The Massachusetts Turnpike Central Artery/Tunnel Operations Control Center is the largest of its kind, featuring over 400 cameras to monitor roads, 1,200 road sensors to detect stopped traffic, 120 carbon monoxide sensors, computer-controlled ventilation buildings, and a radio frequency able to interrupt radio broadcasts and dispatch emergency information. MassHighway and the Turnpike Authority operate numerous variable message signs. The MassHighway Regional Operations Center dispatches emergency locator HELP patrol vans. Automatic Vehicle Locator (AVL) capability is planned.

FAST LANE is an electronic toll-collection system instituted along the Massachusetts Turnpike in October 1998. Vehicles in the FAST LANE system are equipped with transponders that signal that a vehicle is going through a toll plaza without the vehicle having to stop. The toll cost is automatically deducted from a preestablished account. FAST LANE is in operation not only along the Turnpike, but also at the Ted Williams Tunnel, the Sumner/Callahan Tunnels, and the Tobin Bridge, and it is interoperable with EZ-Pass, the electronic toll system used in New York, New Jersey, Delaware, Pennsylvania, West Virginia, and Maryland.

SmarTraveler, sponsored by MassHighway and operated by SmartRoute Systems, delivers real-time, location-specific traffic and transit information for metropolitan Boston via a touch-tone phone (617-374-1234) free of charge. Traveler information is also disseminated through on-line services, television, radio, and print media. SmarTraveler traffic and transit surveillance is conducted via cameras at strategic locations, "mobile probes" reporting to the operations center by mobile phone or two-way radio, monitoring of 350 publicly available radio frequencies for emergency vehicles, and direct lines to the State Police, Amtrak, MassHighway, and the MBTA.

TED WILLIAMS TUNNEL

CARAVAN

CARAVAN provides assistance to commuters, companies, and Transportation Management Associations throughout the commonwealth. It is a private, nonprofit organization that receives funding from MassHighway and the Federal Highway Administration. CARAVAN's 1-888-4-COMMUTE toll-free information line and www.commute.com provide information from over 50 public and private transportation providers statewide. CARAVAN also operates RideSource, a comprehensive commute-management system.

Transit

The Transit System

The public transportation network plays a vital role in providing mobility for residents and visitors who prefer not to or are unable to drive, in sustaining a high quality of life and environment, and in fueling regional economic growth. The

Boston metropolitan area is served by a hub-and-spoke network of rapid transit, streetcar, express bus, commuter rail, and commuter boat lines. These services provide high-quality, cost-effective commuting alternatives to the single-occupant automobile. Local bus and trackless trolley services fill in gaps between spokes by offering line-haul service in heavily congested areas, feeder services to rail, and some intersuburban linkages. Demand-responsive transportation for people with disabilities and the elderly is also provided.

The MBTA is the primary transit provider in the Boston region. The MBTA district is made up of 175 communities and includes communities outside of the Boston Region MPO. The transit services provided are briefly described below. For a more detailed description of the MBTA's existing services, see the Program for Mass Transportation adopted in May 2003 (www.bostonmpo.org/bostonmpo/pmt).

Rapid Transit and Streetcar

The MBTA rapid transit and streetcar system serves 134 stations on six lines. Daily ridership on the rapid transit/streetcar system is approximately 699,000 trips per weekday.

- Red Line – 21-mile line running on two branches between Alewife Station in North Cambridge to both Ashmont Station in Dorchester and Braintree Station in Braintree. It is the longest and most heavily utilized rapid transit line in the system.
- Mattapan High Speed Line – streetcar line connecting with the Red Line and operating between Ashmont Station and Mattapan through the Dorchester neighborhood of Boston and the town of Milton.
- Orange Line – 11-mile line operating between Oak Grove on the Malden/Melrose line and Forest Hills in Jamaica Plain.
- Blue Line – 6-mile line, the shortest of the rapid transit lines, operating between Wonderland Station in Revere and Bowdoin Station in the Government Center area of Boston.
- Green Line – 23-miles of track over four streetcar branches: Boston College branch (B Line), Cleveland Circle branch (C Line), Highland branch (D Line), and the Heath Street branch (E Line). The Green Line is located in Boston, Brookline, Cambridge, and Newton.
- Silver Line – 2-mile bus rapid transit line operating along Washington Street between Dudley Square in Roxbury and Downtown Crossing in Boston.

Figure 2-2 shows the rapid transit and streetcar service in the Boston region.

Bus and Trackless Trolley

The MBTA operates 170 bus routes, and it also has four electric trackless-trolley lines in Cambridge, Watertown, and Belmont. Total bus and trackless trolley ridership is approximately 376,000 trips per weekday, and nearly all routes connect with the rapid transit system. Bus service includes crosstown service, feeder service to rapid transit stations, line haul service in heavily congested areas, and express bus service. Most of these routes have lengthy histories, and many had their origins as streetcar lines built before 1900. Schedules and routings have been revised gradually over the years, but most continue to operate along the same general alignments in response to continuing demand.

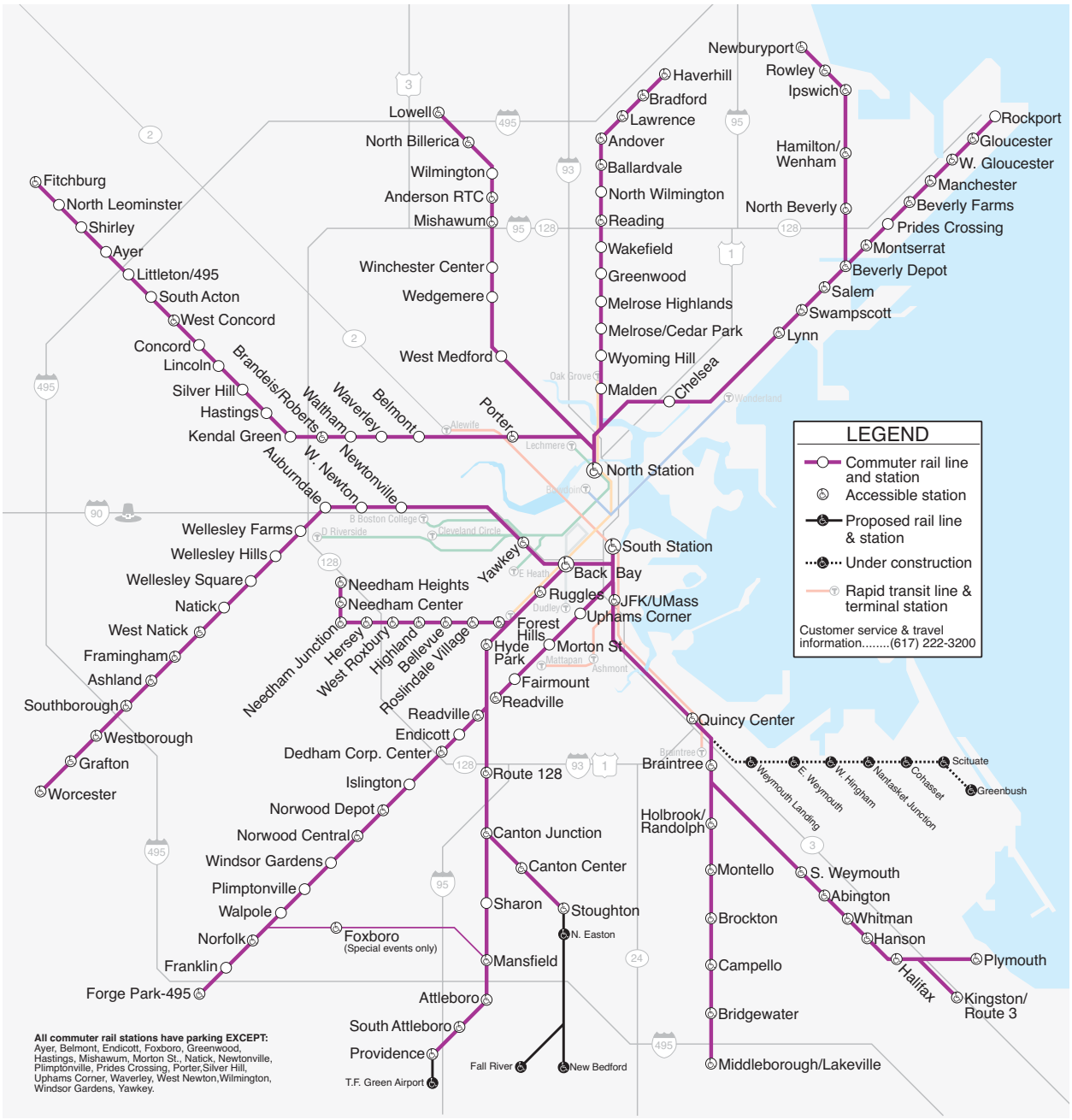
MBTA BUS

Commuter Rail

The 365-mile commuter rail network is comprised of 13 radial lines and has a weekday ridership of over 142,000 (see Figure 2-3). The commuter rail system is split into two sides: North

FIGURE 2-2
MBTA Rapid Transit System

FIGURE 2-3
Commuter Rail System



Side service operates to and from North Station, and South Side service to and from South Station. The Massachusetts Turnpike can be considered the dividing line between North and South Station service: all routes north of the Turnpike—the Rockport, Newburyport, Haverhill, Lowell, and Fitchburg Lines—operate to and from North Station. Lines along the Turnpike or to the south—the Framingham/Worcester, Needham, Franklin, Attleboro/Providence, Stoughton, Fairmount, Middleborough, and Kingston/Plymouth lines—operate to and from South Station. Over 30,000 park-and-ride spaces are provided for commuter rail riders.

MBTA COMMUTER BOAT NEAR LONG WHARF

Commuter Boat

MBTA commuter boat service operates between:

- Hingham and Rowes Wharf (Boston)
- Hull and Long Wharf (Boston)
- Charlestown Navy Yard and Long Wharf
- Lovejoy Wharf and the World Trade Center via the John Joseph Moakley Federal Courthouse (Boston)
- Charlestown Navy Yard and Lovejoy Wharf (Boston)
- Quincy to Long Wharf to Logan

A total of 2,850 parking spaces are provided in Hingham, Quincy, and Hull. The total annual ridership is 1.4 million passengers.

Paratransit

THE RIDE is a paratransit service operated by private carriers under contract to the MBTA that provides transportation to people who cannot use fixed-route public transportation because of disabilities. THE RIDE operates sedans and lift-equipped vans within 62 municipalities in the MBTA district.

Private Carrier and Suburban Bus Service

Five private carriers provide regular local bus transportation in East Boston, Winthrop, Peabody, Salem, Medford, Milton, Canton, Hingham, and Hull under contract to the MBTA. Nine additional private carriers are subsidized through the MBTA's Inter-District Transportation Program (ITP) to provide commuter service to downtown Boston. The same program also finances local services from Framingham to surrounding towns and from Braintree Station to Hanover, Marshfield, and Plymouth. Nine private carriers that are not included in the ITP program also operate commuter service into Boston.

The MBTA provides funding to local communities to operate their own local transit systems. The Suburban Bus Program is geared toward low-density communities where regular MBTA service would not be cost-effective. The program, which began in 1979, subsidizes eleven communities. Four communities—Newton, Concord, Waltham, and Peabody—operate local bus services not included in the Suburban Bus Program.

Programs to Improve Mobility in the Region

Intelligent Transportation Systems

The MBTA employs Intelligent Transportation Systems (ITS) strategies that are part of the ITS architecture for metropolitan Boston. A new bus operations center was recently added to the MBTA's existing rapid transit operations facility. This center will integrate global positioning systems (GPS) on its buses to better schedule and direct its fleet. The Silver Line buses are equipped with GPS-based Automatic Vehicle Location (AVL) technology. The MBTA is also planning to install equipment that will allow some transit vehicles to request signal priority through

short-range communication directly with roadside traffic-control equipment.

New fare collection equipment is on order for subways and buses. Both magnetic-strip fare media and "smart cards" will be used. Future expansion of the fare collection equipment is planned for commuter rail and parking. This equipment can have the capacity to collect data and determine accurate ridership levels, thereby allowing the implementation of variable and flexible fare structures.

The MBTA provides traveler information services in a variety of ways. On the MBTA's Web site, customers can access schedules and maps, and fare, station, and parking information for all bus, rail, and boat services. New automatic trip planning functions are likely to be added to the Web site in the future. Kiosks at bus stops on Washington Street in Boston inform passengers about Silver Line bus arrivals. Interactive travel information kiosks at the South Station Transportation Center provide a direct link to the MBTA's Web site, where customers can access schedule information for all services. Information is also provided through electronic boards on commuter rail platforms.

The MBTA is planning to provide an enhanced customer service information system that will tie directly to the software now being used by the scheduling department. This system will allow customers to access next-trip information for all routes over the phone or on the MBTA's Web site. An itinerary-planning tool will also be available to customers on the Web that generates origin-destination routing suggestions without the aid of a customer service agent.

Park-and-Ride Facilities

There are 117 park-and-ride facilities in the MPO region. These facilities play an important role in reducing congestion in Boston's urban core by enabling individuals to drive short distances from their homes and gain access to other forms of transportation, such as commuter buses, carpools, vanpools, rapid transit, and commuter rail. Most of the lots are conveniently located in downtown centers or along major highways (see Figure 2-4). The MBTA is the largest provider of commuter parking spaces. MassHighway, Massport, and the Massachusetts Turnpike Authority also operate park-and-ride facilities.

There are 76 commuter rail stations in the region that have parking facilities. Of these, 53 facilities were monitored as part of 2002 Congestion Management System efforts, and 85% of the 53 were considered to be at capacity. Another 29 park-and-ride lots are located at MBTA rapid transit stations. Of these, 68% are considered to be at capacity. The remaining facilities are Logan Express lots (which operate out of Braintree, Framingham, and Woburn to Logan Airport), MBTA-contracted ferry depots, or private bus and van lots.

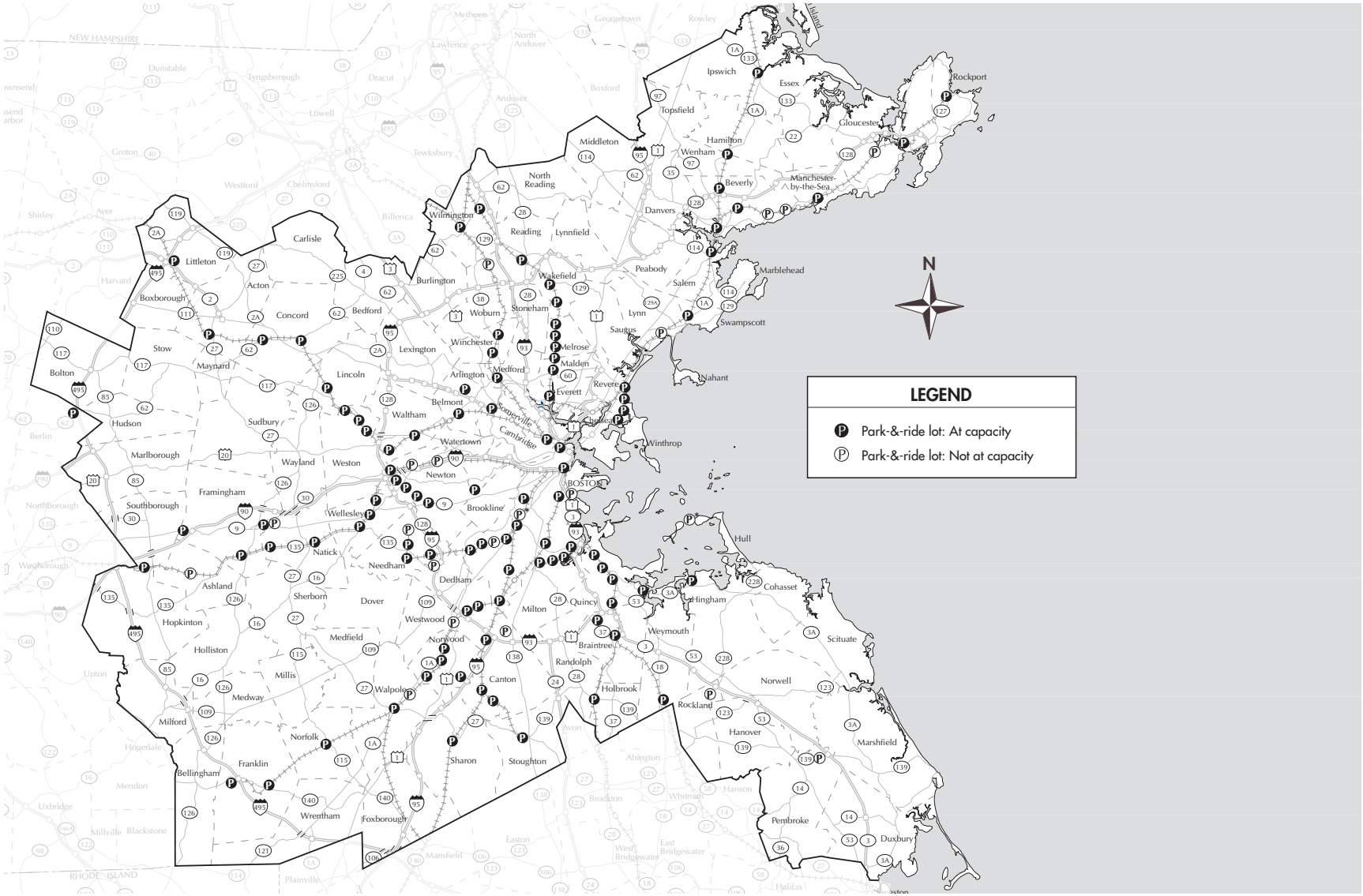
Many of the park-and-ride lots that are at capacity fill very early in the morning. Many commuters may shift travel schedules and work hours to arrive at these facilities early enough to secure a parking space. Limited parking results in commuters being forced to drive into Boston when they find a station to be full, and some may forego transit altogether due to the uncertain availability of parking.


HAMILTON-WENHAM PARK-AND-RIDE LOT

Key Station Program

The Americans with Disabilities Act (ADA) mandated improvements to facilities and infrastructure to ensure that they are accessible. The MBTA developed the Key Station Program, which designated 80 stations in the MBTA system as facilities to be brought into compliance with ADA. Currently 57 stations are in compliance, with the remaining stations to be completed by 2011.

FIGURE 2-4
Park-and-Ride Lots



Transportation Management Associations

Transportation Management Associations (TMAs) are nonprofit coalitions of local businesses dedicated to reducing traffic congestion and pollution and improving commuting options for their employees. Several TMAs support shuttle services which connect employment locations with MBTA rapid transit or commuter rail stations. While some of these services are only available to employees of the member companies, others are open to the general public.

Suburban Transit Opportunities

Where feasible, in areas of the region that are either not served or underserved by existing transit, the MPO has implemented a program to fund suburban mobility projects. The program will fund equipment and other capital-related expenses associated with services that aim to improve mobility in suburban areas. This program seeks to help capitalize services such as:

- Fixed-route transit services operating in suburban-to-suburban and reverse-commute markets
- Employer-based van/carpools
- Flexible-route transit services

EZ RIDE SHUTTLE

Eligible applicants include local or regional public entities, Transportation Management Associations, and other appropriate nonprofit organizations capable of implementing transit services.

Currently, the MPO is studying how existing local suburban entities plan routes and operate services. A literature review of best practices in other metropolitan areas is also being conducted. This study is intended to provide the MPO and other stakeholders with both qualitative and quantitative indicators of what makes a suburban transit system successful.

Bicycle Access

Recently, the MBTA has enhanced its Bikes-on-the-T program. The MBTA has worked on numerous aspects of the program to expand accessibility to the system for bicyclists, including eliminating its bicycle permit program. During off-peak hours, bicycles are allowed on commuter rail trains and on the Orange, Red, and Blue Lines.

Reverse Commuting

The largest reverse commuting attractions for Boston residents are, and will likely continue to be, those within about fifteen miles of downtown Boston. In 2001, the MPO's Central Transportation Planning Staff conducted a Reverse Commuting Study for the MBTA. The study examined the feasibility of providing additional commuter rail and connecting bus transportation services to facilitate reverse commuting. Most employment centers on Route 128 and I-495 are not served directly by commuter rail, and few have feeder buses to existing stations. However, the study did identify opportunities for pilot programs that warrant further exploration.

Service Evaluation Process

MBTA Operations is constantly monitoring service and considering changes or adjustments in response to customer demand. In evaluating potential changes, the MBTA examines a number of factors including the projected number of new transit riders, the rationale for the change, and the net cost per new passenger. Requests for new or changed services can be made by anyone—private citizens, elected officials, MBTA employees, or those representing neighborhood groups or business organizations.

Bicycle and Pedestrian Transportation

Bicycling and walking are primary modes of transportation for many residents of the MPO region. Much of the planning for bicyclist and pedestrians is done at the local level. When planning is done at the regional level, pedestrian mobility is determined by the availability of sidewalks, their condition, and the safety and convenience of roadway crossings. Bicycle mobility is affected primarily by road conditions, although some off-road trails are available in the region.

PEDESTRIANS CROSSING AT GOVERNMENT CENTER

Trails/Routes

There are eleven regional bicycle trails in the MPO region: the Minuteman Commuter Bicycle Path, the Linear Park, the East Boston Greenway, the Dr. Paul Dudley White Bike Path, the Charles River Greenway, the Marblehead Rail Trail, the Battle Road Trail, the Neponset River Trail, the Muddy River Path, the Jamaica Pond Path, and the Southwest Corridor Trail (see Figure 2-5). Most trails are built on abandoned railroad rights-of-way or along natural corridors such as rivers. The Minuteman Commuter Bike Path is an example of the former, and the Dr. Paul Dudley White Bike Path is an example of the latter.

One bicycle route exists in the MPO region and continues outside the region to Falmouth and Provincetown on Cape Cod. The Claire Saltonstall Bikeway, also known as Bikeway Route 1, is primarily an on-road, signed route but includes trail segments where possible. It measures 135 miles in length.

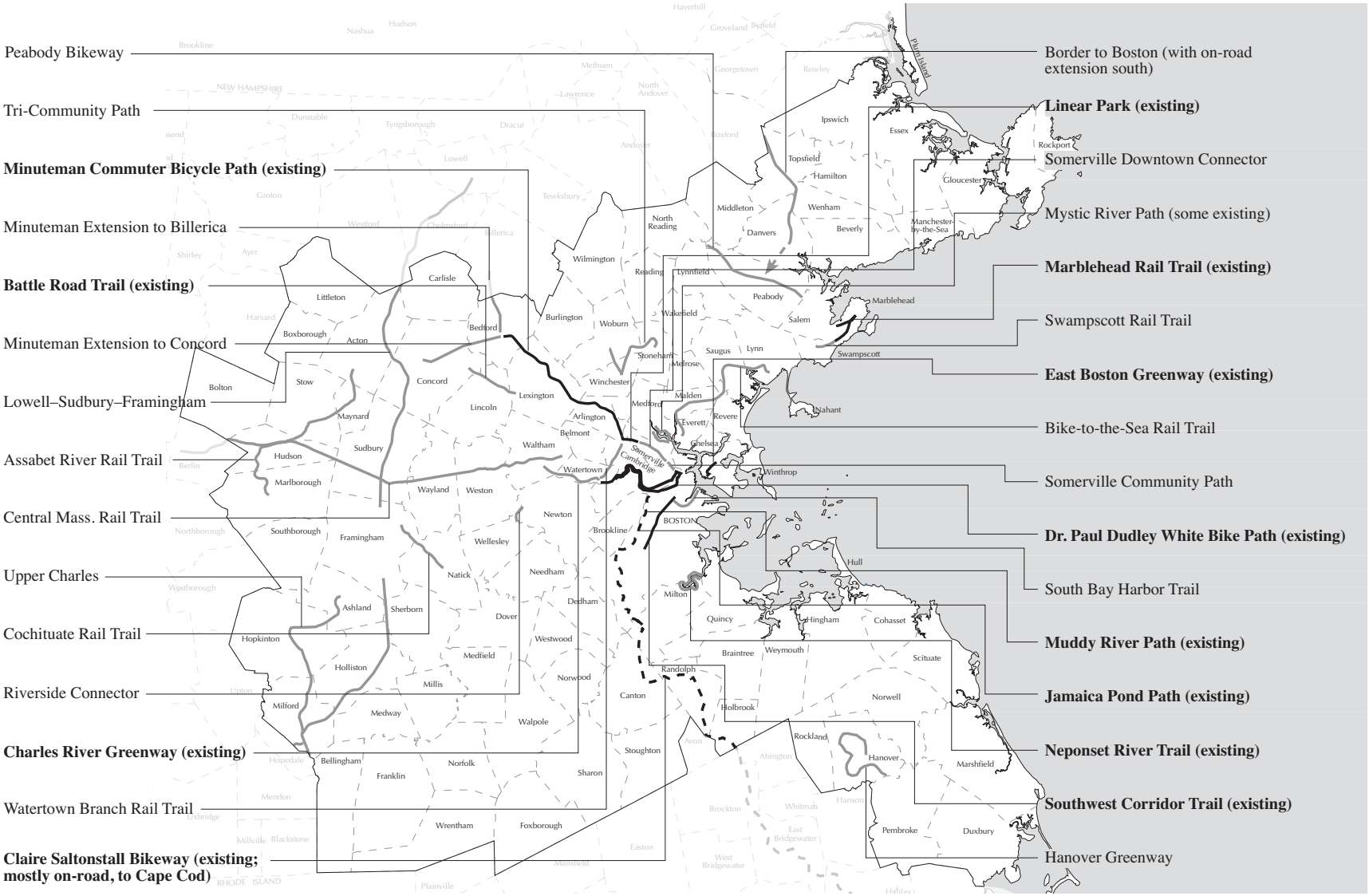
Trails allow users to be separated from motor-vehicle traffic. They are used not only by experienced commuter bicyclists heading to work, but by novice adults and children, who, by using trails, might gain the confidence and experience necessary to travel on-road. In general, trails have proven to be very popular with a wide range of users.

Regional trails in the Boston area either in the planning stage or under construction include the following (see Figure 2-5):

- Bike-to-the-Sea (on the Saugus branch, from Lynn to Everett)
- Tri-Town Bikeway (Winchester, Woburn, and Stoneham)
- Border to Boston (Newburyport branch and Eastern Route main line; Danvers to New Hampshire)
- Assabet River Rail Trail (Marlborough branch, to South Acton)
- Central Massachusetts (Berlin to Belmont, called the Wayside Trail)
- Lowell–Sudbury (and now possibly south to Framingham; northern part is the Bruce Freedman Trail)
- Upper Charles (Framingham to Milford)
- Minuteman–Charles River connector (via the Watertown branch)
- Peabody Bikeway
- Swampscott Rail Trail
- Rockland–Hanover Trail
- Minuteman Extension into Concord
- South Bay Harbor Trail
- Somerville Community Path Extension
- Mystic River Path (some sections constructed)

While the Boston area has some well-used trails, these can serve only a fraction of all trips. The utility of trails for transportation purposes is

FIGURE 2-5
Existing and Proposed Bicycle Facilities



greatly enhanced by connections to other trails, to transit, and to employment and retail areas. There is potential in the Boston region for a significant trail network.

The MBTA has indicated that it will make rights-of-way available to communities for trails, either on a permanent or interim basis, depending on the future use of the land. There is also potential for trails alongside active rights-of-way when appropriate safety measures are used. Further examination of this option would be required.

MassHighway is responsible for funding both on- and off-road improvements to make bicycle travel more attractive. They have teamed with the Massachusetts Office of Travel and Tourism to develop maps and brochures geared to bicycle travel. Improving bicycling requires accommodating bicyclists on bridges and roadways, improving bicycle access to and bicycle parking (including long-term, secure, sheltered parking) at transit stations and park-and-ride lots, and promoting awareness of rights and responsibilities through education programs. While MassHighway's primary focus is planning and engineering, it continues to work closely with other agencies to enhance pedestrian and bicycle education, enforcement, and encouragement initiatives.

Road Travel

Chapter 90E, Section 2A, of the Massachusetts General Laws (Chapter 87, Acts of 1996) requires consideration of bicyclist and pedestrian needs regarding roadways whenever feasible. The intent of this law is to make it as safe as practical for bicyclists and pedestrians. In some cases, restriping may be all that is necessary, but room for bicyclists can be provided by bicycle lanes, paved shoulders, or by wide outside travel lanes.

Massachusetts state law regulates that bicycles operate under the same laws and adhere to the same regulations as motor vehicles. The most common on-road mobility constraint for bicyclists is lack of operating space. Pavement problems, including potholes, pavement deterioration, and abrupt drop-offs at the edge of pavements, are much more critical to bicyclists than motorists.

Recently, the Boston Region MPO completed the MetroWest Bicycle Compatibility Index, which rates roads in the MetroWest subregion using an FHWA index. The same roads were rated subjectively by the MetroWest Bicycle Committee to produce the MetroWest Bicycle Map in 2000. In addition, recent improvements in Cambridge on Massachusetts Avenue and Fresh Pond Parkway addressed bicycle concerns in the project design.

BICYCLIST TRAVELING ON BEACON STREET

Access to Other Modes

Because bicycling and walking are most popular for trips under five miles and one mile, respectively, they are often used to connect to other modes. Those who bicycle to transit connections either park their bicycle or take it on board. There are bicycle parking facilities at most MBTA stations, and they are added as a matter of course during station reconstruction. Crosstown bus routes are equipped with bicycle racks that can carry two bicycles. The MBTA has also instituted a capital program to expand bicycle parking facilities systemwide. This program dedicates transit enhancement funding in the amount of $50,000. The MBTA has also worked with the Massachusetts Bicycle Coalition (MassBike) to identify locations for bicycle racks, while MassHighway continues to address access issues through trail construction and roadway reconstruction projects.

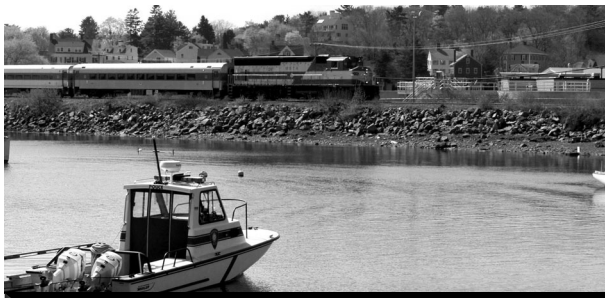
Intercity Travel

The importance of passenger travel between cities is particularly great in the densely populated New England and Northeast Corridor regions. The Boston region is the largest urbanized area in the six-state New England region. It is significant to

intercity travel in New England, both as the major trip generator and as the transportation hub for many trips in which Boston is not the point of origination or destination. Boston's Logan International Airport carries approximately 64% of all commercial air passenger trips that pass through New England airports, although the Boston area population comprises only about 25% of the six-state total.

The Boston region is also the northernmost major metropolitan area in the Northeast Corridor. This corridor, which encompasses Washington, D.C., Baltimore, Philadelphia, New York City, Boston, and the smaller urban areas in between, has historically generated more intercity travel than any other region in the nation. Even as the population of the United States has dispersed to the south and west, the Northeast Corridor has remained the nation's largest generator of intercity traffic.

Boston's location at the northern end of the Northeast Corridor has led to its being a terminus for most of the intercity bus and rail traffic coming through the region from New York City and points south. Boston's proximity to New York City, the nation's largest metropolitan area, has created a situation where air, bus, and rail frequencies between the two cities surpass the levels seen in almost every other city pair in the United States outside of the Northeast Corridor. Automobile traffic on the major highway routes heading south along the corridor is also greater than that observed on other intercity highways between metropolitan areas outside of the region.



AMTRAK TRAIN BOUND FOR NORTH STATION

Airports

Airports located in the Boston region include Logan Airport and Hanscom Field. Logan Airport, located in East Boston, is owned and operated by MassPort and is the sixth-busiest airport in the United States. Access to Logan Airport is greatly facilitated by its location less than two miles from downtown Boston. Approximately 19% of those currently traveling to or from Logan use public transportation. Planning is underway to improve transit access to the airport. A rebuilt Airport Station on the MBTA's Blue Line and better connections with South Station via the Silver Line and the Airport Intermodal Transit Connector are two of the current projects designed to increase public transportation's share of the Logan air passenger market.

Hanscom Field, located in the towns of Bedford, Concord, Lexington, and Lincoln 15 miles northwest of downtown Boston, is owned and operated by MassPort. It is the busiest general-aviation airport in New England, handling business, charter, private, and air taxi flights. Currently, one commercial carrier operates out of Hanscom. Federal Express, a major cargo carrier, is gearing up to begin operations at Hanscom in the near future. Located three miles from I-95 and Route 128, Hanscom Field is accessible by car and by MBTA Bus Route 76 out of Alewife Station.

Intercity Rail

Amtrak, the nation's passenger rail system, offers daily departures from South Station and North Station in downtown Boston. Amtrak shares both North and South Station rail facilities with the MBTA's commuter rail service. Connections between these stations can also be made via the Red Line, Orange Line, and Green Line, as well as the intercity bus terminal. Trains departing from South Station operate either along the Northeast Corridor route, providing service to Providence, New Haven, New York City, Philadelphia, Baltimore and Washington, D.C., or along the Inland route through Framingham, Worcester, Springfield, and Hartford, connecting with the Northeast Corridor route in New Haven. The trains departing from North Station are for the Downeaster service, which runs between Boston and Portland.

The MBTA's commuter rail system provides service to other New England cities, although these trips are primarily scheduled to coincide with commuting patterns into Boston. The largest cities served by the commuter rail system are Providence and Worcester from South Station, and Lowell from North Station.

Intercity Bus

The vast majority of intercity bus trips that serve the Boston metropolitan area use the South Station bus terminal. Most of this travel consists of longer intercity trips, but there are some suburban commuter trips. Direct service is provided to most major cities and attractions within New England, as well as Montreal and Toronto.

INTERCITY BUS

Automobile

The largest share of intercity travel is by automobile. The automobile offers the convenience of traveling at a driver's discretion, and the immediate, incremental cost of travel is relatively low.

Interstate 95 provides the only direct highway connection to New York City from the Boston metropolitan area. Between Boston and New York, I-95 also serves Providence, Rhode Island, and New Haven, Connecticut. I-95 continues south through the corridor to serve Philadelphia, Baltimore, and Washington, D.C. The Massachusetts Turnpike (I-90) provides an alternative route to New York City and the rest of the Northeast Corridor from the Boston region. The primary variation of this route involves taking the Turnpike to Sturbridge and then using Interstates 84 and 91 to connect with I-95 in southern Connecticut. I-93 and I-95 provide access north to New Hampshire and Maine.

Freight Transportation

A key component of a healthy, vibrant economy for the Boston region is the ability to efficiently move goods and freight within it. This ability requires an infrastructure that allows for the smooth transfer of goods to their final destination. Impediments to movement increase the delivery cost of goods and place a drag on the economy of the region.

Approximately 95% of all freight shipped through the Port of Boston has a final destination within 75 miles. The main modes of freight movement within the region are truck, rail, water, and air; however, truck is the predominant mode.

Truck

The trucking industry, composed of private operators and highly competitive, depends upon state and local authorities to maintain a safe and efficient highway network. It comprises several major types of operators, including private fleets, long distance for-hire truckload (TL) carriers, and regional less-than-truckload (LTL) carriers. The United States economy depends on the trucking industry for a majority of the shipments of goods to factories, stores, and households, and each of these types of carriers depends on having a roadway network that meets its needs.

A major problem facing the trucking industry in the Boston region is the lack of a coordinated truck route policy. Because of the nature of the street patterns developed over the past 350 years, it is often common to have truck routes along heavily populated residential corridors. This causes a conflict between residents' desire for a quiet streetscape and the trucking industry's desire for a direct route between origin and destination. Under Massachusetts law, a community must gain permission from MassHighway before restricting truck traffic.

Rail

The rail industry is also an important operator of freight transportation within the Boston region, with CSX Transportation being the major intermodal rail carrier. Products shipped by rail include automobiles, chemicals, containers (with and without chassis), and bulk products. Over the last two decades, the trucking and rail industries have created a closer link to one another through the use of container shipping and double-stacking. Primarily used over long routes, double-stacking has increased the potential competitive advantage for rail shipping. In the Boston region there is a problem of lack of bridge clearances over railroad rights-of-way. Also, the Port of Boston has no direct rail access.

Water

The ports of the Boston region have played a key role in the economic development of New England since the 1600s. The main ports are located in Boston, Gloucester, and Salem. Important categories of freight transported by water include refined petroleum products, liquid natural gas, dry bulk commodities (e.g., coal, sand, and scrap metal), containers, and automobiles. Major trade routes from Boston include barge service to New York and Canada and scheduled container ship service from Europe and Asia.

Air

Freight transported by air usually has at least one of the following characteristics: time sensitivity, high value-to-weight ratio, or perishability. Logan Airport currently serves as the only air freight terminal in the Boston region, and the major intermodal freight movement to and from Logan is by truck. There is no freight rail access to Logan Airport, and no provisions for it are likely to develop. In 1998, Logan Airport ranked 36th in the world in terms of cargo handled.

FREIGHT AT MORAN TERMINAL

CHAPTER

3

THE PLAN DEVELOPMENT PROCESS

Federal planning regulations require a regional transportation plan to be developed every three years. The last full Boston Region MPO Transportation Plan (2000–2025) was adopted in January 2001. At that time, the Federal Highway Administration and Federal Transit Administration were conducting their triennial review of the Boston Region MPO's planning process. The planning process was recertified, subject to the completion of five corrective actions, one of which involved the issuance of an updated Transportation Plan implementing improvements to the MPO's approach to environmental justice. That 2000–2025 Transportation Plan Update was adopted in March 2002. As part of developing the Update, the MPO conducted an extensive public outreach process to solicit public comments regarding the guiding policies of the Plan, land use policies, project selection, and environmental justice issues.

The MPO has built upon the work done for the 2000–2025 Plan Update in the development of this 2004–2025 Plan. This chapter outlines the development process that was followed in the adoption of the 2004-2025 Plan.

THE PUBLIC OUTREACH PROCESS

In 2001 and 2002, the MPO implemented an aggressive program of public involvement throughout the region in the development of the 2000–2025 Plan Update. It had many components:

- The Regional Transportation Advisory Council (called the Joint Regional Transportation Committee prior to December 2001) discussed the Plan Update at its monthly meetings between October 2001 and January 2002. It also convened a subcommittee to review the Plan Update and assist the Advisory Council in making recommendations.
- The MAPC subregional groups discussed the Plan Update throughout the fall of 2001 and early winter of 2002. Participants offered oral comments at the groups' meetings, and many submitted written comments.
- Six workshops and one regional meeting were held in the fall of 2001 at which Plan policies, projects, and land use scenarios were discussed.
- Seven public workshops were conducted on the draft Plan Update in the winter of 2002.
- Five public workshops were held in the summer of 2002 to discuss an environmental justice addendum to the 2000-2025 Plan, along with a work scope for further environmental justice analysis that is now documented in this 2004–2025 Plan.

Building upon this input, the MPO continued the public outreach process in developing the 2004–2025 Plan. This included:

- Discussions with the Advisory Council beginning in January 2003.
- Discussions with the MAPC subregional groups beginning in January 2003, including eight visioning/prioritization workshops in the spring of 2003.
- Four public workshops on all certification documents, including this Plan, in the spring of 2003.
- Two public workshops and an open house in August 2003, during the public comment period for this Plan.

The Advisory Council is a primary avenue for public input into the development of MPO documents. The Council has a Regional Transportation Plan Subcommittee responsible for providing input to MPO staff as the Plan is developed and for guiding development of formal Council comments on the draft Plan. The Council also conducts field trips to sites of projects being considered in the Plan.

The MPO works with the MAPC subregional groups on an ongoing basis, cosponsoring many public discussions, attending monthly meetings, and working with the groups to solicit participants' views and priorities.

The MPO is using new and better means of promoting awareness of MPO processes. A one-way e-mail list server is used to contact individuals about upcoming events. The list includes municipal officials, legislators, local and regional transportation activists, and other interested citizens. It is frequently updated, and all workshop attendees and other citizens who so request are added. Press releases, distributed to all major and most local newspapers in the region, announce public workshops and other events. Some notices are also sent via fax.

The MPO now consistently uses its Web site (www.bostonmpo.org) to announce upcoming meetings and their agendas and to post meeting minutes, and it promotes its site at all public discussions. Particularly notable is the site's improved process for commenting.

All workshops are held in accessible venues, and materials are available in accessible formats.

The MPO continues to also rely on its newsletter, *TRANSREPORT*, to provide the public with information on MPO certification activities. *TRANSREPORT* provides wide circulation (more than 2,500 individuals and organizations) of transportation information to a targeted population with a history of interest in transportation issues.

All of these tools were used in the public outreach conducted as part of Plan development.

RED LINE

Public Comment

Numerous public comments were received via the MPO public outreach process described above. The MAPC subregional groups identified their priorities for projects and made other recommendations. Citizens attending the MPO workshops both gathered and provided information. In addition, there has been increased citizen attendance at regularly scheduled MPO meetings and worksessions. A summary of the written public comments received during the development of this Plan is included in Appendix J.

ENVIRONMENTAL JUSTICE

Environmental justice was an important factor in the development of the 2004–2025 Plan. MPO policy promotes the equitable sharing of the region's transportation system benefits and burdens as well as participation in decision making.

To implement this policy, the MPO has organized a collaborative process with representatives of environmental justice communities, adopted a definition of environmental justice, identified communities of concern, developed measures (which it used in formulating the Plan), and conducted a systems-level analysis of environmental justice for the region that follows national best practices and is discussed in detail in Chapter 6. The MPO worked closely with the FHWA and FTA to formulate this process.

Environmental Justice Committee

An MPO Environmental Justice Committee was created in the spring of 2002. As a standing committee, it is expanding on the work accomplished by its predecessor, the MPO Environmental Justice Ad Hoc Committee, which was organized in the fall of 2000. The present committee's role is to provide input and guidance to the MPO in the consideration of the equitable distribution of transportation benefits and burdens. The goal is to engage, over the long term, low-income and minority communities in this work. The committee provides a forum in which traditionally underserved constituencies provide input into the MPO's transportation planning.

Committee members include representatives from neighborhoods and communities with high percentages of low-income or minority residents. They also include leaders in community development, community action, and social services. There are six members representing the urban core, three members representing the area between the urban core and Route 128, three members representing the area outside Route 128, and one member representing the state's Executive Office of Environmental Affairs, an agency with an active environmental justice program. Eight MPO members and a representative of the Regional Transportation Advisory Council also participate on the committee. Committee members were invited to participate by the MPO.

Committee members include:

- Action, Inc. (Gloucester area)
- Alternatives for Community and Environment (Roxbury area)
- Asian Community Development Corporation (Chinatown area)
- Chelsea Greenspace Committee (Chelsea, East Boston area)
- Four Corners Coalition (Dorchester area)
- Salem Harbor Community Development Corporation (Salem, Lynn area)
- Somerville Community Development Corporation (Somerville, Cambridge area)
- South Coastal Workforce Board (Quincy area)
- South Middlesex Opportunity Council (Framingham, Marlborough area)
- Tent City Corporation (Mattapan area)
- Tri-City Community Action (Malden, Medford, Everett area)
- Waltham Alliance to Create Housing (Waltham area)
- Executive Office of Transportation and Construction (MPO)
- Executive Office of Environmental Affairs
- City of Boston (MPO)
- Massachusetts Bay Transportation Authority (MPO)
- MBTA Advisory Board (MPO)
- Massachusetts Highway Department (MPO)
- Metropolitan Area Planning Council (MPO)

SUBURBAN BUS

- Regional Transportation Advisory Council (advisory to MPO)
- Town of Bedford (MPO)
- Town of Hopkinton (MPO)

Committee Process and Products

Fourteen meetings were held to provide input for the systems-level analysis for this 2004–2025 Plan and for other issues. Several of the meetings were held to provide a base of information for members and elicit comments to guide the development of the Environmental Justice Addendum to the 2000–2025 Plan Update and of the work scope for the systems-level analysis. Others were forums for seeking guidance in the data collection and analysis and for discussing work products and the results. Some members hosted Environmental Justice Committee meetings in their communities to provide members an opportunity to get to know their area.

Members provided detailed presentations on existing conditions and important transportation needs in their communities. This information was incorporated into community profiles and needs analyses. The community profiles are provided in Appendix B.

The committee made numerous comments and gave important guidance for the environmental justice work. The committee prepared language that was included in the Environmental Justice Addendum, identified additional data to be collected as part of the work scope for the environmental justice systems-level analysis for this 2004–2025 Plan, and provided guidance for future considerations. Reviewing mapping and data prepared by the MPO, it provided input and defined:

- MPO environmental justice target populations
- Specific communities of concern (see Chapter 6)
- Destinations to be evaluated, including employment sectors, institutions of higher education, and health care institutions

Members also provided numerous suggestions for the analysis, made requests for additional information, and made specific recommendations for projects to be included in the 2025 Build analysis, which can be found in Appendix B. MPO analysis focused on mobility, accessibility, and environmental results of the 2025 No-Build scenario and two 2025 Build Scenarios. These results are provided in Chapter 6 and Appendix B.

The MPO will continue to rely on the Environmental Justice Committee to identify projects and programs that meet environmental justice neighborhoods' transportation needs. New information will be included in future Regional Transportation Plans, Transportation Improvement Programs, and Unified Planning Work Programs.

UNIVERSE OF PROJECTS

One of the primary components of this Regional Transportation Plan is a list of major capital expansion projects for implementation over the next twenty-two years. To select these projects, the MPO first created a Universe of Projects, a list of all possible projects for consideration. It used different processes for creating the highway and transit portions of this list.

Highway Projects

The highway Universe of Projects list is comprised of those projects included in a previously adopted Regional Transportation Plan; projects previously studied, under study, or in development; and projects included in comments received during the public outreach process for both the previous 2000–2025 Plan and this 2004–2025 Plan. The highway Universe of Projects list can be found in Appendix C.

LEVERETT CIRCLE

Transit Projects

The MBTA recently adopted their Program for Mass Transportation (PMT), which defines a vision for regional mass transportation and sets priorities for infrastructure investments in the areas of system preservation, service enhancements, and system expansion. The PMT process included extensive public outreach generating hundreds of project ideas. These ideas were included in the universe of projects evaluated in the PMT. This expansive list was screened to create a shorter, feasible list of projects that warranted further evaluation. Consistent criteria were identified to conduct the screening process. That process led to the approximately sixty projects that were considered in this 2004–2025 Plan. For a more detailed discussion of the screening methodology, visit the MPO's Web site at www.bostonmpo.org and click on the MBTA Program for Mass Transportation button. The transit Universe of Projects list, which contains both the projects that survived the screening and those that did not, can be found in Appendix C.

THE USE OF GOALS AND POLICIES IN THE SELECTION OF HIGHWAY PROJECTS

The MPO devoted a considerable amount of time to the development of guiding policies during the 2000–2025 Plan process. A complete list of the policies guiding the development of the Regional Transportation Plan is provided in Chapter 5. The MPO used these policies in the project selection process of the 2004–2025 Plan. Each highway project included in the Universe of Projects with a defined description was rated according to its perceived consistency with the following ten of the twelve policies:

- Land use
- Safety and security
- Mobility
- Air quality
- Connection among modes

GREENLINE AT SCIENCE PARK STATION

- Accessibility
- Environmental justice
- Preservation or modernization of the system
- Economic opportunities
- Community preservation

The two policies not used (public involvement and innovative financing) are not applicable to assessment of individual projects; these policies are entirely process oriented. The evaluation assigned one of three ratings: high, medium, or low. An explanation of the rating system and a matrix summarizing the evaluation of projects may be found in Appendix D.

THE USE OF THE PROGRAM FOR MASS TRANSPORTATION IN THE SELECTION OF TRANSIT PROJECTS

As discussed above, the screened list of projects from the PMT was considered for transit project selection in the development of this Plan. Within the PMT, this list was further evaluated and prioritized using performance measures to determine how well each project met the PMT goals and objectives. These goals and objectives are consistent with the Boston MPO's regional policies. The projects were evaluated based on thirty-five individual performance measures divided into seven categories:

- Utilization
- Mobility
- Cost-effectiveness
- Air quality

- Service quality
- Economic and land use impacts
- Environmental Justice

Within the cost-effectiveness category, performance measures were used that considered project impacts on both existing and new riders.

A list of the transit expansion projects broken down by mode (rapid transit, bus and trackless trolley, commuter rail, and boat) and their evaluations are provided in Appendix D. Each is given a rating of high, medium, or low for each of the performance measure categories and as an overall rating.

DEVELOPMENT OF DEMOGRAPHIC FORECASTS

As part of the 2004–2025 Regional Transportation Plan process, the MPO projected what the land uses will likely be in the year 2025. This involved projecting population, employment, and households and allocating them throughout the region. The process of integrating land use considerations into the process began during the development of the 2000-2025 Plan Update with the review of two different land use scenarios, Basic Forecast and Targeted Growth.

ROUTE 1 IN SAUGUS

- Basic Forecast (or "trends extended") assumes that past growth areas will continue to be attractive; existing resource and infrastructure constraints are overcome and do not limit development; and large numbers of people will move to or commute into the eastern Massachusetts area in response to large numbers of new jobs.
- Targeted Growth assumes that development will occur in areas with adequate water and sewer capacities and existing transit infrastructure.

These two growth scenarios were presented for public review in meetings held around the region in 2000 and 2001 and were subject to discussion by the MPO. Ultimately, the Targeted Growth land use scenario was selected for use in developing the 2000–2025 Plan Update. The MPO made the decision to continue using the Targeted Growth assumptions in the development of the 2004–2025 Plan. Detailed descriptions of the development of the population, employment, and household projections under the Targeted Growth land use scenario are presented as Appendix E.

TRAVEL DEMAND FORECASTS

In developing the Regional Transportation Plan, it was necessary to conceptualize the region's transportation needs over the next 22 years. Land use patterns, growth in employment and population, and trends in travel patterns all create different demands on the region's transportation system. In order to estimate future demands on the system for this Plan, the MPO utilized a regional travel-demand forecast model. The model is a planning tool used to evaluate the impacts of transportation alternatives given varying assumptions with regard to population, employment, land use, and other factors. The model also can be used to assess potential projects in terms of air quality benefits, travel times, and congestion reduction.

Travel Demand Model Characteristics

The travel model set simulates existing travel conditions and forecasts future-year travel on the eastern Massachusetts transit and highway systems. To get a more accurate picture of the travel demands in the Boston region, the Eastern Massachusetts Regional Planning Project (EMRPP) area is used. The EMRPP region includes an additional 63 communities outside of the 101-municipality MPO region.

The model contains all MBTA rail and bus lines, all private express bus carriers, all express highways and principal arterials, and many minor arterials and local roadways. The region is subdivided into almost one thousand traffic analysis zones (TAZs). The model set simulates transportation supply characteristics and transportation demand for every TAZ to every other TAZ. This simulation is the result of several inputs; the most important include population, employment, auto ownership, transit fares, automobile-operating costs, and highway and transit levels of service. These inputs are updated on a regular basis to ensure the reliability of the forecasts. The model set, which is similar in nature to those used in most other large urban areas in North America, also incorporates many new procedures, including the ability to forecast nonmotorized trips and to constrain for parking at MBTA stations.

Travel Demand under 2000 Base Case, 2025 No-Build, and 2025 Build Conditions

The travel model analysis for the Regional Transportation Plan consisted of several steps. First, an existing conditions network was tested to simulate recent (2000) travel conditions. Appendix F describes all major highway and transit projects that were open for public use by December 31, 2000. Projects included for analysis in the model were "regionally significant" as defined by the federal government. They were regional in nature, added capacity, and had air quality impacts as measured by the model.

A 2025 No-Build alternative was then coded and modeled. The 2025 No-Build alternative assumed only those improvements that will be made between 2000 and 2025. Descriptions of the 2025 No-Build projects are included in Appendix F. The 2000 Base Case and 2025 No-Build scenarios provided a baseline against which the predicted effects of potential future investments in the transportation system were measured.

COMMUTER RAIL

Next, two alternative sets of projects (2025 Build Scenarios) were developed and compared to the 2025 No-Build scenario (see Development of 2025 Build Scenarios, below). Then, these results and other measures, including policies and public comments, were reviewed. A final set of projects was recommended, coded, and modeled. Using the No-Build analysis as a point of reference, the model runs helped to measure the effectiveness of each future action alternative.

The forecasts for the 2025 No-Build and Build scenarios used the 2025 demographic data developed by MAPC using the Targeted Growth scenario assumptions. Several important travel statistics were included in each of these forecasts, including:

- Total vehicle miles of travel (VMT) and vehicle hours of travel (VHT) on a typical weekday
- Average speed of highway traffic
- Amount of air pollution produced by automobiles and transit vehicles
- Total number of daily trips made by auto and transit
- Average daily transit ridership by mode (bus, subway, commuter rail, etc.)
- Percentage of people traveling by each of the travel modes

Selected travel modeling results for the 2000 Base Case and 2025 No-Build alternatives are included in Appendix H.

DEVELOPMENT OF 2025 BUILD SCENARIOS

The MPO used the Universe of Projects as a source for selecting projects to model in the 2025 Build Scenarios. As discussed above, the results of running the regional travel demand model were one of the inputs used by the MPO to determine the merits of possible projects. In addition to these results, the MPO used information produced on projects in feasibility studies, project-specific studies, project-specific modeling work, and environmental impact reports. Both modeling results and other types of information can be found in Appendix H.

Each highway project was also reviewed for conformity with the MPO's transportation policies. PMT prioritizations were reviewed for each transit project. In addition, the MPO reviewed comments from the Regional Transportation Advisory Council, the Environmental Justice Committee, and the MAPC Subregional Groups, and public comments received from outreach sessions held during the development of this Plan and the 2000–2025 Plan Update.

Using these inputs, the MPO developed two transportation project lists for modeling. The two model alternatives were developed based on the "information produced," meaning that highway projects were eligible to be included if there was sufficient project information to do network coding and if a cost estimate existed, and that transit projects were eligible if they were included in the PMT. Highway projects for which this information was not available and transit projects that were screened out of the PMT were not included in the project lists.

Alternative One was based on the projects that were recommended in the 2000–2025 Plan Update adopted in March 2002. The MPO felt that this was a good starting point based on the amount of work and public review that had been completed within the last two years. All highway projects were again reviewed using the inputs outlined above. The transit projects were reviewed using information and prioritization provided by the newly adopted PMT.

Alternative Two was developed to provide model results for a high-interest project that was not included in the first alternative. This was based upon a recommendation of the MPO's Environmental Justice Committee (see Appendix B). Alternative Two was essentially the same as the first alternative with the exception that it included the conversion of the Dudley-to-Boylston section of the existing Silver Line to light rail in place of the Silver Line Phase III project.

Listings of the projects in the two alternatives are presented in Appendix G. The final recommended project network segregated funding by use: highway revenues were used for highway projects and transit revenues were used for transit projects.

The model results for the two transportation alternatives using the Targeted Growth land use scenario are summarized in Appendix H.

CHAPTER

4

THE FINANCIAL PLAN

INTRODUCTION

Federal regulations require the Regional Transportation Plan to include a financial plan comparing the estimated transportation revenue from existing and available sources, both public and private, with the estimated cost of constructing, maintaining, and operating the existing and planned transportation system. If this comparison reveals a revenue shortfall, the financial plan must identify proposed sources for the additional revenue necessary to cover the shortfall and provide strategies for ensuring the availability of such revenue.

This financial plan is limited to the components of the regional transportation system over which the Boston Region MPO has some funding or programming jurisdiction. These components are the Central Artery/Tunnel project, the statewide road and bridge system, and the regional public transportation system.

THE CENTRAL ARTERY/TUNNEL PROJECT

In December 2002, the Federal Highway Administration (FHWA) approved the latest Central Artery Finance Plan submitted by the Massachusetts Turnpike Authority. The MPO reviewed the Finance Plan and accepted the projections contained in the plan. The source of the cost and revenue projections for the Central Artery/Tunnel project in this Regional Transportation Plan is that December 2002 plan.

As of December 2002, it is estimated that the project's overall cost will total $14.625 billion. Over $13.3 billion is committed, with almost 87 percent of the construction scope under contract. Of the $14.625 billion estimated total, $12.1 billion is expended. The project is considered 87% complete. The amount remaining to be expended by the project is $2.6 billion.

Project Funding Summary

The Central Artery/Tunnel project is funded through the following seven sources:

1) Federal reimbursements ($7.049 billion)
2) Grant Anticipation Notes ($1.500 billion)
3) Commonwealth bonds ($1.588 billion)
4) Transportation Infrastructure funds ($2.343 billion)

5) Massachusetts Port Authority funds ($300 million)

6) Massachusetts Turnpike Authority funds ($1.650 billion)

7) Insurance Trust revenue ($150 million)

Federal Funding

Excluding Grant Anticipation Notes (GANs), federal aid accounts for 48% of project funding. Accounting for full federal reimbursement for the GANs principal (the Commonwealth funds yearly interest payments from annual appropriations, while principal payments will be drawn from future federal highway apportionments), the federal portion is approximately 58%. On May 8, 2000, FHWA instituted an administrative cap on the project. Under this cap, the Project cannot exceed $7.049 billion in federal obligations plus $1.500 billion in GANs repayments, for a total federal participation level of $8.549 billion.

State Funds

Like all federally funded highway projects, the Central Artery/Tunnel project requires matching funds from state sources. General obligation bonds, revenue from two trust funds, and Massachusetts Port Authority and Massachusetts Turnpike Authority funds comprise the state matching funds for this project.

LEONARD P. ZAKIM BUNKER HILL BRIDGE

General obligation bonds are estimated to contribute up to $1.588 billion.

The revenue from the Insurance Trust Fund is estimated to generate $150 million for the project.

In May 2000, the state legislature enacted enabling legislation creating the Central Artery and Statewide Road and Infrastructure Trust Fund. The Infrastructure Trust Fund authorized $1.35 billion in bonds to be funded from the following sources: reinstated registry and license fees, the Massachusetts Turnpike Authority ($200 million), the Massachusetts Port Authority ($65 million), Commonwealth debt service savings, and investment earnings on balances in the Fund. The projections for the performance of the fund are based on a number of factors, including market forces, which are only estimated by the Central Artery Finance Plan.

The Massachusetts Port Authority is statutorily obliged pursuant to the Metropolitan Highway System legislation (Chapter 3 of the Acts of 1997, M.G.L. Chapter 81A) to purchase not less than $200 million of assets built as part of the Central Artery/Tunnel project. A joint assessment study concluded that is was appropriate for MassPort to acquire certain segments of the project located near Logan Airport and to pay $300 million in the exchange. This is in addition to MassPort's contribution of $65 million to the Infrastructure Trust Fund.

The Massachusetts Turnpike Authority is expected to contribute up to $1.85 billion (including the $200 million to the Infrastructure Trust Fund) to the construction of the project. The Turnpike Authority entered into a Memorandum of Understanding with the Executive Office of Administration and Finance and the Executive Office of Transportation and Construction in February 1999 that amended and restated an earlier Memorandum of Understanding. Section 2 of the 1999 Memorandum of Understanding permits the Turnpike Authority to make payments by transferring funds directly to the Commonwealth's Capital Expenditure Reserve Fund or by directly paying on behalf of the Commonwealth amounts owed to third parties in connection with any portion of the Central Artery/Tunnel project.

Remaining Project Obligations

The MPO estimates it will program $1.385 billion in federal funding for the project from fiscal year

TABLE 4-1
Total Central Artery/Tunnel Project Expenditures by Funding Source
($ in millions)

Federal Funds	Expended	Remaining	Total
Federal reimbursements	6,354	695	7,049
Grant Anticipation Notes	1,484	16	1,500
State Funds			
Commonwealth bonds	1,380	208	1,588
Infrastructure Trust Fund	1,125	1,218	2,343
Massachusetts Port Authority funds	298	2	300
Massachusetts Turnpike Authority funds	1,351	299	1,650
State interest on MTA funds	24	21	45
Insurance Trust revenue	45	105	150
Total	12,061	2,564	14,625

2004 to fiscal year 2009 and $0.912 billion from fiscal year 2010 to fiscal year 2013. (This includes remaining federal reimbursements and repayment of the GANS.) The GANs repayment schedule from the Central Artery Finance Plan indicates $131 million repayment in federal fiscal year 2005, $225 million from federal fiscal year 2006 to federal fiscal year 2011, and $16 million in FFY 2012. Once completed in 2005, the Central Artery/Tunnel project will be operated by the Massachusetts Turnpike Authority.

THE STATEWIDE ROAD AND BRIDGE SYSTEM

The MPO has forecast highway revenues through 2025. The projections for 2004–2009 are the TIP targets provided to the MPO by MassHighway. The funding for 2010 through 2025 is a level-funded projection of 2009 revenues.

Highway revenues consist of federal and state funds made available on an annual basis to MassHighway. MassHighway has projected federal funds based upon current apportionment levels, while state funds are based upon recent trends in non-Artery funding. Funding available for the statewide road and bridge program is determined after deducting certain programs off the top. These off-the-top programs include the Central Artery/Tunnel project, other regions' mega-projects, the Route 3 North project, and statewide items (planning, extra work orders, and infrastructure maintenance). Table 4-2 shows projections of available highway revenue in two six-year increments (2004–2009 and 2010–2015) and the remaining ten years (2016–2025).

In September 2000, in order to meet the needs of non-Artery roadway projects, the state and its MPOs executed a "Memorandum of Understanding of the Task Force of State and Regional Officials to Define, Develop and Monitor a Statewide Road and Bridge Program." This MOU commits MassHighway to expend no less than $400 million per year on non-Artery transportation projects in the remaining years of Artery construction (through fiscal year 2005).

For programming and planning purposes, the Massachusetts Association of Regional Planning Agencies (MARPA) developed targets for use in apportioning highway funding among the MPOs. Under the MARPA targets, the Boston Region MPO assumes that it will receive approximately 43% of all available highway funds. Based on that assumption and the projections contained in Table 4-2, the Boston Region MPO can expect to receive an average annual allocation of approximately $113 million during the remaining years of Artery funding (2004–2013) and an average of approximately $283 million per year thereafter.

Between fiscal years 1996 and 2000, the MPO dedicated approximately 90.8% of non-Artery highway revenues to system maintenance and

TABLE 4-2
Highway Finances
($ in millions)

	2004–2009	2010–2015	2016–2025	Total
Statewide federal apportionment	3,358	3,426	5,710	12,494
less Central Artery share	1,679	911	0	2,590
Subtotal Statewide Road & Bridge Program	1,679	2,516	5,710	9,905
Multiply by 0.913 for Obligation Authority	1,533	2,297	5,213	9,043
less Regional Major Infrastructure Projects	380	0	0	380
less Route 3 North A/C Conversions	0	480	160	640
less statewide items	490	388	646	1,524
Subtotal of deductions	869	868	806	2,543
Balance available for regions	664	1,429	4,407	6,500
Matching funds provided by the State	166	357	1,102	1,625
Subtotal Regional Federal Aid Program	830	1,786	5,509	8,125
Multiply by 0.43 for Boston MPO share	357	768	2,369	3,494
Non–Federal Aid Program	0	0	0	0
Subtotal Boston MPO highway funding	357	768	2,369	3,494
Unobligated HPP funds from TEA-21	62	0	0	62
Boston MPO "share" of statewide items	191	237	542	970
Total Plan Highway Program	610	1,005	2,911	4,526
Boston MPO Highway Funds				
Total federal funds	286	614	1,895	2,795
Total non-federal funds	71	154	474	699
Boston MPO "share" of statewide items	191	237	542	970
Unobligated HPP funds from TEA-21	62	0	0	62
Total Funding	610	1,005	2,911	4,526
70% available for maintenance & improvement	427	703	2,038	3,168
30% available for expansion projects	183	301	874	1,358

improvement, while obligating approximately 9.2% to system expansion. System maintenance and improvement includes infrastructure projects, such as bridge rehabilitation or highway reconstruction, and system enhancements, such as the construction of pedestrian or bicycle facilities or the signalization of intersections. System expansion means additional roadway capacity through either reconstruction projects or new roadways. It should be noted that the large percentage of funds that was obligated for system maintenance and improvement during fiscal years 1996–2000 was, in part, a function of the fact that the Central Artery/Tunnel project was the only large, multi-year capital project funded in the MPO region. However, the effect of the Artery project on the region's non-Artery program is beginning to lessen. In the current Transportation Improvement Program, the MPO has committed approximately 32% of its highway funding to expansion projects, while programming 68% for system maintenance and improvement.

Based upon historic trends, the MPO has determined that the appropriate level of funding for capital maintenance and improvement over the life of the Regional Transportation Plan is approximately 70% of available funding. This level of spending will require $3.168 billion for system maintenance and improvements over the 22-year period of this Plan. The remaining 30%, or approximately $1.358 billion, will be used for necessary expansion projects.

THE REGIONAL PUBLIC TRANSPORTATION SYSTEM

The Massachusetts Bay Transportation Authority (MBTA, or Authority) projections of long-range revenues and expenses are included in the Silver Line Phase III Finance Plan (Finance Plan) of the New Starts application, submitted in August 2003. The Finance Plan includes projections through 2022 and is the basis for the projections in the Regional Transportation Plan (Plan). Since the Plan includes projections through 2025, certain cash flows in years 2023–2025 are based on extrapolations from the trends and assumptions in the Finance Plan. A summary of how the MBTA funds operations and capital is provided below.

Operating

The recently enacted fiscal reform legislation transitioned the Authority's funding environment. The new Enabling Act established dedicated sources of revenue and mandated the Authority to operate as an independent, financially self-sustaining public transportation agency. Prior to Forward Funding, the Commonwealth funded the MBTA in arrears. The Enabling Act and the new financing mechanism for the MBTA have been referred to as Forward Funding to reflect the fact that the MBTA's costs will no longer be funded in arrears.

THE SILVER LINE

Commencing July 1, 2000, the Authority no longer received Net Cost of Service or debt assistance. Instead, under the Enabling Act, the Authority receives a dedicated revenue stream consisting of assessments paid by the 175 cities and towns in accordance with the Enabling Act (Assessments) and one cent of the statewide sales tax (dedicated sales tax together with the Assessments are the dedicated revenues).

In addition to the dedicated revenues, the Authority's operations are funded by fare revenue and non-fare revenue (such as revenue from advertising, parking, concessions, real estate sales, and interest income). The Authority has experienced a decline over the past year in both fare and sales tax revenues. Growth in sales tax revenues is expected to remain flat in fiscal year 2004, with the MBTA receiving the guaranteed floor amount.

Capital

The MBTA's capital program is primarily funded by two major sources: revenue bonds and federal grants (other sources include project financing, Pay-as-you-go/Capital Maintenance Fund, and state appropriations). Prior to Forward Funding, the MBTA's non-federal portion of the capital program was funded by General Transportation System bonds issued by the MBTA and backed by the Commonwealth Guaranty. Under Forward Funding, the MBTA's non-federal portion of the capital program is primarily funded in the early years by revenue bonds secured by the Dedicated Revenues under two separate credits (assessment bonds and sales tax bonds) established under the Enabling Act. The assessment bonds are secured by the assessments paid by the 175 cities and towns in the MBTA district and the sales tax bonds are secured by the sales tax revenues received by the Authority.

The MBTA's goal is to preserve sufficient funding for the operating budget, and it cannot allow debt service expenses to increase in relation to operating expenses. Taking this into consideration, the MBTA will look to transition itself from complete reliance on debt financing to greater use of pay-as-you-go financing of capital projects. It is, however, anticipated that the General Court (state legislature) will appropriate additional capital funds for projects required by legal commitments predating the Forward Funding legislation and for other projects mandated by new legislation. (See Chapter 161A, Section 18, of the Massachusetts General Laws, as amended by the Commonwealth's fiscal year 2000 budget, and page 4-10 of this Plan for more detail.)

Operations and Maintenance Costs

The MBTA's operating expenses include wages, benefits, payroll taxes, materials, supplies, services, and purchased transportation. In the Finance Plan, operating expenses for the year 2004 are projected to increase by 2.3% compared with 2003. The Finance Plan also assumes a 3% annual increase in 2005 and 2006, and a 2% annual increase thereafter. This one percent reduction in operating cost after 2006 is part of an MBTA policy to reduce operating expenditures during that period. Additional allowances are made for net operating costs (fare revenues less operating costs) of expansion projects assumed to be implemented in this Regional Transportation Plan within this time frame. This Regional Transportation Plan extrapolates these projections to 2025. Over the life of this Plan, projected operating expenses are approximately $22.8 billion for the existing system and an additional $1.76 billion for the expansion projects included in this Plan.

Prior to Forward Funding, operating shortfalls were covered by the Commonwealth. The transition to Forward Funding required the Authority to be fully responsible for its finances, thus creating the need for reducing operating costs while providing efficient transit services to the region. The financial reform legislation provided the MBTA with the tools necessary to develop a sensible approach to controlling the growth of operating expenses.

MBTA bonds were backed by the Commonwealth prior to the enactment of the Forward Funding legislation. Upon the effective date of the legislation, however, contract payments from the state ceased and all outstanding debt became the responsibility of the MBTA. The projected debt service payments for new and prior-obligation debt over the period of this Transportation Plan equal approximately $9 billion.

Similar to debt service expenses, obligations under prior lease agreements became the sole responsibility of the MBTA upon the effective date of the Forward Funding legislation. The MBTA's obligations of this kind are related primarily to "Safe Harbor" lease agreements executed in the 1980s for various MBTA rolling stock. Under such agreements, non-federal shares of rolling stock were sold to private corporations and leased back to the MBTA (the corporations received tax benefits for such transactions, in the form of deductions for depreciation). These leases will terminate in 2013 and payments will total approximately $128 million.

An additional requirement of the Forward Funding legislation was a mandate that the MBTA maintain a cash surplus equal to 0.5% of the sum of the annual allocation to the Authority from the state sales tax and assessments on cities and towns in the MBTA district. Over the life of this Regional Transportation Plan, this requirement equals approximately $143 million.

Table 4-3 shows the projected operating and maintenance costs of the current MBTA system from 2004 through 2025.

Revenues to Fund Operations and Maintenance

The revenues available to fund operating and maintenance costs of the MBTA over the life of this Plan are comprised of the following sources: operating revenue, dedicated sales tax revenue, local assessments, and nonfare revenue (under anticipated allocation formulas, the MBTA will

receive minimal federal aid for operating expenses). Table 4-4 contains the MBTA's projected revenues over the period of this Plan, 2004 to 2025.

In the Finance Plan, operating revenue projections have a base of $283 million per year for current ridership levels at current fares. With no other changes, this would result in revenue of $6.23 billion over the life of the Plan. Fare increases at various times during the period of the Plan would generate an additional $2.24 billion. Ridership growth would account for an additional $474 million. The Finance Plan projections assume ridership growth of 1% per year over the base level. In years when a fare increase is assumed, ridership declines by 3%. This trend includes only anticipated ridership growth of the current system (i.e., it excludes growth from planned projects). Revenue from planned projects is deducted from operating costs of those projects in the results in Table 4-3.


RED LINE

Since July 1, 2000, the Authority has no longer received Net Cost of Service assistance, which had been unlimited, or Section 28 assistance. Instead, under the Enabling Act, the Authority receives a dedicated revenue stream consisting of the amounts assessed on cities and towns of the Authority in accordance with the Enabling Act and revenue from the dedicated sales tax. The dedicated sales tax is equal to the greater of the amount raised by a 1.0% statewide sales tax, which equals 20% of the existing statewide 5.0% sales tax (the Dedicated Sales Tax Revenue Amount or DSTRA), or the Base Revenue Amount (BRA—$684 million in FY 2003), in either case to be funded from existing sales tax receipts, subject to upward adjustment under certain circumstances set forth in the Enabling Act. For the purpose of the Finance Plan, the MBTA used the following assumptions to estimate the sales tax revenues:

- Sales tax receipts from 2003 through 2007 are equivalent to the BRA, growing at three percent annually beginning in 2005. No growth is projected in 2004.
- Beginning in 2008, the sales tax receipts are projected to be equivalent to the projected DSTRA, growing at five percent annually.

In the Plan, the 5% annual growth is carried out to 2025. Over the period 2004 to 2025, projected sales tax revenue equals approximately $24.86 billion.

In addition to the sales tax revenue, the MBTA receives funding through local assessments in accordance with a statutory formula. The 175

TABLE 4-3
Projected Operations and Maintenance Costs of the MBTA Transit System

	2004–2009	2010–2015	2016–2021	2022–2025	Total
Standard operations & maintenance costs	$5,244,000,000	$5,935,000,000	$6,683,000,000	$4,917,000,000	$22,779,000,000
Debt service*	$2,260,000,000	$2,756,000,000	$2,657,000,000	$1,672,000,000	$9,345,000,000
Operating lease payments	$84,000,000	$44,000,000	$0	$0	$128,000,000
Marginal impacts of additional projects*	$146,000,000	$387,000,000	$630,000,000	$600,000,000	$1,763,000,000
Legislatively required operating surplus	$26,000,000	$34,000,000	$45,000,000	$38,000,000	$143,000,000
Total operating costs	$7,760,000,000	$9,156,000,000	$10,015,000,000	$7,227,000,000	$34,158,000,000

** Note: Includes Silver Line Phase III*

municipalities within the MBTA's district pay an assessment to the MBTA on an annual basis. The amount paid by each municipality varies according to the population and level of service provided. For FY 2003, the assessments are projected at $141 million, and they are subsequently reduced to $136 million in FY 2006, by statute. After that, the assessments are projected to increase by a maximum of 2.5% per year (the maximum allowed under the limitations established by Proposition 2$^{1}/_{2}$ in each year starting in 2007. In this Regional Transportation Plan's estimates, the 2.5% annual growth is carried out to 2025. Over the period 2004 to 2025, projected local assessment revenue equals approximately $3.75 billion.

The final component of the system revenue is non-fare revenue, such as that derived from parking fees, advertising, concessions, rent, interest income, utility reimbursements, and non-operating revenues such as income earned on investments and sale of property. Some of the initiatives that the MBTA has implemented to increase non-fare revenues include:

- Addition of 5,201 parking spaces across its parking network.
- Parking fee increases: Effective January 6, 2003, the MBTA raised all parking fees. This action is expected to generate $5.5 million annually.
- Sale, lease, or licensing of MBTA-owned real estate, generating over $13 million per year.
- $2 million increase in advertising revenue in FY 2004.
- Approximately $250,000 per year from marketing programs.

The Finance Plan projects that non-fare revenue will amount to $60 million in 2004, increasing to $66 million in 2006 and to $70 million in 2009. After 2009, it assumes that non-fare revenue will remain constant at $70 million per year. In this Regional Transportation Plan's estimates, the $70 million per year is carried out to 2025. Over the period 2004 to 2025, projected non-fare revenue equals approximately $1.51 billion.

As shown earlier in Table 4-3, the projected operating and maintenance costs of the MBTA over the period of this Transportation Plan are $34.158 billion, while Table 4-4 shows revenues of $39.050 billion, providing projected funds available for discretionary capital or liquidity of $4.892 billion. These funds are projected to be available to fund MBTA operations and the capital program through a combination of pay-as-you-go (PAYGO) funding and to service future debt issues.

Capital Program Funding

The MBTA capital program is composed of five funding programs:

- Federal aid
- Bond proceeds
- Project financing

TABLE 4-4
Projected MBTA Operating Revenue from the Transit System

	2004–2009	2010–2015	2016–2021	2022–2025	Total
Base operating revenue	$1,698,000,000	$1,698,000,000	$1,698,000,000	$1,132,000,000	$6,226,000,000
Ridership growth	$10,000,000	$87,000,000	$198,000,000	$179,000,000	$474,000,000
Fare increases	$395,000,000	$690,000,000	$690,000,000	$460,000,000	$2,235,000,000
Sales tax	$4,466,000,000	$5,862,000,000	$7,856,000,000	$6,672,000,000	$24,856,000,000
Local assessments	$841,000,000	$960,000,000	$1,111,000,000	$839,000,000	$3,751,000,000
Nonfare revenue	$388,000,000	$420,000,000	$420,000,000	$280,000,000	$1,508,000,000
Total	$7,798,000,000	$9,717,000,000	$11,973,000,000	$9,562,000,000	$39,050,000,000

GREEN LINE

- Pay-as-you-go financing (Capital Maintenance Fund)
- Special state appropriations

The Silver Line Finance Plan assumes that the MBTA will gradually transition from a capital program that relies primarily on bonding to one that relies primarily on other sources. Consequently, after 2006, revenue bond proceeds are assumed to decline in most years compared with the previous year, except for some increases during the years 2014 to 2018, and after 2022. Total proceeds from this source from 2004 to 2025 are estimated at $3.671 billion.

Federal Aid

The current federal appropriations program (TEA-21) will expire shortly, and details of a new program have not yet been finalized. In this Regional Transportation Plan, the figures for non-discretionary federal funds for the years 2004 through 2010 are based on the best available estimates of funds that the MBTA is likely to receive under the new formulas. For years subsequent to 2010, annual appropriations of $165 million are assumed. This results in a total estimate of $3.949 billion in federal funds from 2004 to 2025, excluding New Start and Transportation Infrastructure Finance and Innovation Act (TIFIA) grants.

Federal New Starts funds are projected to be secured for three projects (50% of project cost):

1. Silver Line Phase III: $379 million is anticipated between 2004 and 2012.
2. Urban Ring Phases 1 and 2: $443 million is assumed between 2016 and 2021 (some funding for this project will be available between 2010 and 2015 ($48 million), but the majority will be available after 2015).
3. North Shore Transit Improvements: $311 million is assumed between 2022 and 2025.

The combined total of New Starts funds for these projects, along with a carryover of $4 million prior to 2004, would be $1.185 billion. The total federal aid projected to be available to the MBTA during the period of this Regional Transportation Plan from all programs combined is $5.163 billion.

The Boston MPO feels that it is reasonable to assume this level of federal financial support based on New Starts funding that the MBTA has previously received. Projects that have received New Starts funding include Silver Line Phase II, Urban Ring, and North Shore Transit Improvements. The Silver Line Phase II is under construction and is anticipated to be completed by next year. In TEA-21, Congressman Tierney secured a $50 million authorization for the North Shore project for a possible extension of the Blue Line. This authorization has helped fund the current initiative. The Authority has worked to define the alternatives for the Urban Ring and North Shore corridors. Both the Urban Ring and North Shore projects are currently under review within the draft environmental impact statement process. It is anticipated that the Urban Ring and North Shore Transit Improvements projects will be competitive in the New Starts selection process, since this type of funding has already been received to fund the current studies being performed for these projects. While the current priority is to secure a Full Funding Grant Agreement for Silver Line Phase III, the MBTA continues to demonstrate a commitment to expansion when fiscally prudent as demonstrated in the Finance Plan.

TIFIA Grants

The MBTA and the City of Somerville are pursuing private funding for the Assembly Square Orange Line Station, including the use of Transportation Infrastructure Finance and Innovation Act (TIFIA) funds. The TIFIA share of this proj-

ect is estimated to be $29 million. (This is included in the assumed federal total above.)

Grant Anticipation Notes (GANs)

GANs will allow the MBTA to accelerate receipt of future federal grants. A GAN is any bond or note repayable, either exclusively or primarily, with future federal funds. In FY 2005, the MBTA is planning to issue $42 million in GANs to purchase new buses.

Project Financing

Project financing is the generation of funds to finance an economically separable capital investment project and can be arranged when a facility or a set of assets is capable of operating as an economically independent unit. Under this funding structure, the operating and debt service expenses are supported solely by the revenues generated from the project. The MBTA strives to finance future parking facilities utilizing project financing techniques. Currently, the Authority is in the process of constructing a new parking facility at North Quincy, which will be funded with this method.

Bond Proceeds

The MBTA issues bonds to pay for the local share of all capital projects. The Forward Funding finance plan projects the MBTA gradually transitioning from a capital program that relies primarily on bonding to one that requires little, if any, bond proceeds. Reliance on bond proceeds will be greatest in the years 2004 to 2009, accounting for $1.904 billion of the $3.671 billion assumed over the life of the Plan.

Pay-As-You-Go Financing

The Authority's goal is to use pay-as-you-go financing in both the short and long-term to fund the capital program. The advent of forward funding has enabled the MBTA to maintain a modest amount in the Capital Maintenance Fund. This fund will be used for the MBTA's State of Good Repair Program and will address the ongoing schedule of maintaining the equipment and mass transportation facilities of the system. Pay-as-you-go is a method of funding capital projects using cash rather than issuing bonds and incurring additional debt service expenses. Continuance of a pay-as-you-go financing method requires significant surpluses in the upcoming years, which will be determined by the level of fare and non-fare revenue and by the MBTA's continued progress on containing operating expenses.

State Appropriations

Between 2004 and 2015, additional state appropriations of $804 million are anticipated to cover costs of projects legally committed under the State Implementation Plan (SIP) prior to the passage of the Forward Funding legislation, along with new directives. No state appropriations are assumed beyond 2015. Examples of SIP commitments include restoration of Green Line service to Arborway, the Blue Line–Red Line Connector, and extension of the Green Line to Medford Hillside. The Boston Region MPO has made this assumption due to language that was included in the Forward Funding legislation. Forward Funding amended the MBTA's enabling legislation, which is Chapter 161A of the Massachusetts General Laws. Section 18 of the amended enabling legislation specifically states that:

> "the commonwealth may, subject to appropriation and provisions of article 62 of the Constitution of the Commonwealth, pledge its credit, guaranty, or support for the funding of transit commitments made in connection with the central artery project, so called, capital improvements required under the Americans with Disabilities Act, or any other projects to conform to federal statutory mandates, or projects or services specifically authorized and funded by legislation enacted by the general court after July 1, 2000, or any other projects or services authorized by the general court prior to July 1 for which funding is appropriated by the general court subsequent to said July 1; provided, that the authority shall not be obligated to make expenditures for any such commitments or projects so authorized for which the funds necessary to complete and operate such commitments or projects, including the guarantee of contract assistance, have not been made available to the authority."

The Boston MPO acknowledges that the legal commitments have always rested with the Commonwealth, and interprets the above Forward Funding language as reasserting the MBTA's role as an implementing agency only for such projects. This wording explicitly limits the MBTA's financial involvement in legal commitment projects. The Boston MPO further notes that the language suggests an active role by the Legislature concerning these commitments.

Since Forward Funding was instituted, the Legislature has acted several times to assist in the funding of transit projects, including legal commitments:

- Section 99 of Chapter 236 of the Acts of 2000 (Fiscal Year 2000 Supplemental Budget) included funding of $66.6 million for four stations on the Dorchester branch of the Red Line.
- Section 53 of Chapter 246 of the Acts of 2002 (2002 Transportation Bond Bill) included language providing for debt service funding to construct the Fall River/New Bedford Project.
- Currently Senate Bill 1867 is under review by the Joint Transportation Committee to provide a 50% state match from the Commonwealth, up to $60 million, for improvements at Ashmont Station and along the Fairmount Commuter Rail Line.

The Boston MPO believes that, together with the Forward Funding language, the Legislature's actions over the last several years signal the Legislature's willingness to fund transit projects and hence not compromise the MBTA's financial structure.

The MPO will initiate discussions regarding this action through written correspondence with the Massachusetts Executive Office for Administration and Finance and the General Court's Joint Transportation Committee. The letter will outline the assumptions used in the Regional Transportation Plan, as well as request a meeting to discuss this issue. Progress will be reported in future correspondence and through status reports included in the Boston MPO Region's annual Transportation Improvement Program.

The construction of a ferry terminal at Russia Wharf (also a legal commitment under the Central Artery) will cost $2.2 million and will be funded by the Massachusetts Turnpike Authority as outlined in an interagency agreement with the MBTA. This project will be constructed by the MBTA as part of the Silver Line Transitway project (Silver Line Phase II).

Table 4-5 provides a breakdown of the MBTA capital program by source. Based upon historic trends, the Boston Region MPO assumes in this Plan that over time the capital maintenance needs of the MBTA will consume at least 70% of all available capital revenues (excluding those from the special state appropriations and TIFIA funds discussed above). This will leave a maximum of 30% (plus any special state appropriations and TIFIA funds) for capital expansion projects.

TABLE 4-5
Projected Funds Available for the MBTA Capital Program

	2004–2009	2010–2015	2016–2021	2022–2025	Total
Federal aid: Nondiscretionary	$1,297,000,000	$1,002,000,000	$990,000,000	$660,000,000	$3,949,000,000
Federal aid: discretionary	$200,000,000	$231,000,000	$443,000,000	$311,000,000	$1,185,000,000
Federal aid - TIFIA	$0	$29,000,000	$0	$0	$29,000,000
Revenue bonds	$1,904,000,000	$609,000,000	$666,000,000	$492,000,000	$3,671,000,000
State appropriations/ bonds	$275,000,000	$529,000,000	$0	$0	$804,000,000
Massachusetts Turnpike	$2,200,000	$0	$0	$0	$2,200,000
Total	$3,678,200,000	$2,400,000,000	$2,099,000,000	$1,463,000,000	$9,640,200,000

MBTA capital maintenance needs include infrastructure projects such as signal and track upgrades; system enhancement projects; and accessibility projects, such as improvements necessary to comply with the Key Station Plan. Capital expansion projects, on the other hand, are projects that add new service to the system. The actual allocation of funds between capital maintenance and expansion projects, while limited to the 70/30 split over the long term, may vary somewhat in each year. Table 4-6 shows the level of funding available for these two types of projects for six-year increments between 2004 and 2021, and for a final four-year increment from 2022 to 2025.

Status of the Legal Commitments Under the State Implementation Plan (SIP) and the Central Artery/Tunnel Project

As part of the air quality conformity determination of the Regional Transportation Plan, the Boston Region MPO must include all legal commitments included in the SIP and those required as mitigation of the Central Artery/Tunnel Project in the financially constrained Plan and show how these projects will be funded in a timely manner. The status of the legal commitments is described below, and the sources of funding for these projects are given.

Old Colony/Greenbush Commuter Rail

Schedule: The original completion date for the Greenbush Line as set forth in the SIP was December 31, 1996. An extension was granted to December 31, 1999. In November 2000, the MBTA provided the Department of Environmental Protection (DEP) with a series of interim offsets for this project that will remain in effect until the Greenbush Line is in service. The MBTA plans to complete this project under a design-build approach. The MBTA Board of Directors awarded a design-build contract in February 2002, with construction scheduled to begin in the fall of 2003. In February 2003, the MBTA delayed the project by six months because three major components had not been brought to a satisfactory resolution (real estate acquisitions, environmental permits, and mitigation agreements).

Funding sources: MBTA Bond Proceeds and PAYGO

Arborway Restoration

Schedule: The MBTA filed documents in January 1999 with DEP indicating that the restoration of Green Line service on the Arborway was infeasible. In October 2001, after requesting further information, DEP determined that the project was feasible and directed the MBTA to complete the project. In a December 3, 2001, letter to DEP, the MBTA prepared a schedule for designing and constructing the project with a concurrent community process. The schedule included the completion of final design by April 2004, with construction to begin in August 2004 and be completed by the end of 2006.

In subsequent meetings in 2002, DEP asked the MBTA to update their schedule. The MBTA iden-

TABLE 4-6
Projections of the Use of Transit Capital Funds

	2004–2009	2010–2015	2016–2021	2022–2025	Total
MBTA capital funds available	$3,678,200,000	$2,352,000,000	$2,147,000,000	$1,463,000,000	$9,640,200,000
Maintenance & improvement projects	$2,479,000,000	$1,256,000,000	$1,503,000,000	$909,000,000	$6,147,000,000
Transit expansion projects	$1,199,200,000	$1,096,000,000	$644,000,000	$554,000,000	$3,493,200,000

Note: Maintenance and improvement projects are assumed to account for 70% of capital funds, except that state appropriations/bonds are allocated 100% to expansion projects

tified a number of critical-path items that must be resolved before the MBTA can advance the design to a final stage or begin construction. These include:

- Completion of the environmental review process
- Satisfactorily completing the community involvement process
- Addressing the City of Boston's public safety requirements

On March 18, 2003, the MBTA filed an expanded environmental notification form that laid out the methodology to study the environmental impacts of the project. On June 23, 2003, the Massachusetts Environmental Policy Act Office issued a certificate and a scope for the environmental impact report. As described in a February 13, 2003, letter to DEP from the MBTA, the MBTA believes that it is imprudent to commit to more specific milestones without successfully resolving the critical-path items first. They anticipate that many of these will be resolved as part of the environmental review process.

Funding source: General Court

Blue Line–Red Line Connector

Schedule: This project is required to be completed by December 31, 2011. The MBTA initiated a planning-level ridership benefit study early in 2003. This study will define the user benefits of this project given the transit network improvements programmed and implemented since 1990, including the Silver Line and the Airport Intermodal Connector service.

Funding source: General Court

Green Line Extension to Medford Hillside

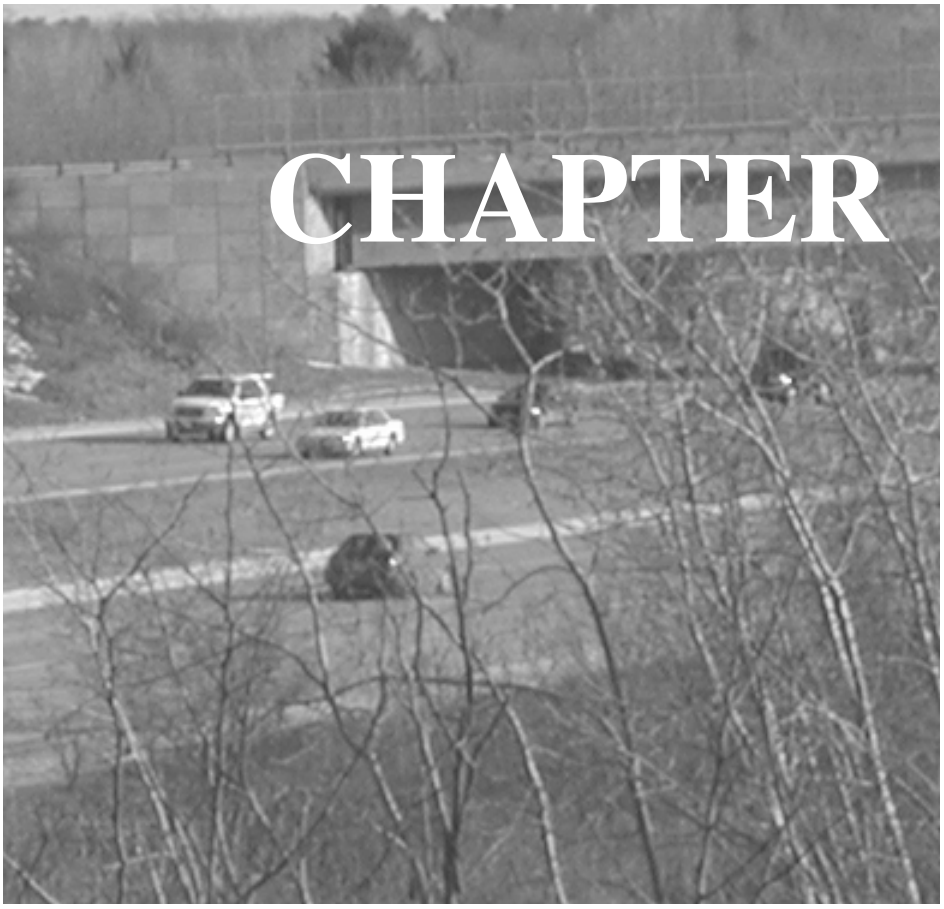
Schedule: This project is required to be completed by December 31, 2011. The MBTA is preparing for a planning study that will define a preferred alternative for this project. Issues to be resolved at the planning level include environmental impact, routing options, methods of construction, and operational characteristics. These issues will be addressed through a planning process managed by the MBTA with the participation of Medford and Somerville community representatives.

Funding source: General Court

Russia Wharf Ferry Terminal

Schedule: Funding of this project is the responsibility of the Massachusetts Turnpike Authority; however, the MBTA will construct it as part of the Silver Line Transitway project. The project is currently in the design phase, but construction can not begin until the Transitway project construction is completed in the wharf area.

Funding source: The Massachusetts Turnpike Authority has transferred some funds to the MBTA through an interagency agreement and will be transferring the remainder as the project is completed.



CHAPTER 5

ROADWAY SYSTEM

The region's roadway system is comprised of freeways, expressways, arterials, collector roads, local roads, and bridges. The regional roadway system consists of approximately 23,024 lane miles. Lane mileage within the 101 communities of the MPO region ranges from 41 miles in the Town of Nahant to 2,493 miles in the City of Boston. Funding for roadway improvements (both rehabilitation and new construction) is provided from federal and state resources. Massachusetts annually receives approximately $510 million per year in federal highway funds, 71% of which is currently allocated by the state and MPO to the Central Artery project and 29% of which is used for the statewide road and bridge program. In addition, the state annually provides funding to match federal-aid, to fund non-federal aid projects, and to address local transportation needs. The legislature generally allocates approximately $100 million annually in Chapter 90 funds. Chapter 90 money is used by communities to address local transportation needs, subject to criteria established by the legislature and implemented by MassHighway.

Roadway Characteristics and Pavement Management

Regionwide, there are 6,726 miles of arterials, including 1,138 miles of interstate; 2,816 miles of collector roads; and 13,932 miles of local roads. Table 5-1 shows the ownership of the lane miles within the Boston Region MPO. It is important to note that the classification of a roadway does not necessarily correlate to ownership of the roadway.

Roads and streets are grouped into functional systems according to the types of service they provide.

Table 5-1
Ownership of the Regional Highway System (Lane Miles)

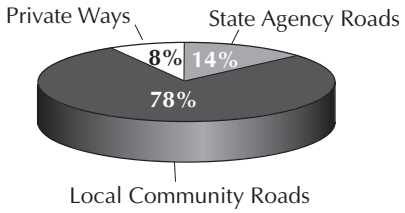
Massachusetts Highway Department	2,494
Metropolitan District Commission	463
Massachusetts Turnpike Authority	202
Massachusetts Port Authority	16
Other State Entities	31
City/Town Accepted	17,909
Federal Agencies	10
Unaccepted (Private)	1,899
TOTAL	23,024

As defined by the Federal Highway Administration (FHWA), freeways, expressways, and arterials provide a high level of mobility at a relatively fast speed for long uninterrupted distances and are not intended to provide access to specific locations. Arterials in the region include all of the interstate highways as well as heavily traveled numbered routes. Examples include Route 2, Route 9, Routes 1 and 1A, and Route 3.

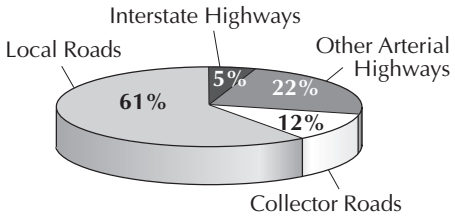
Collector roads provide a lower level of mobility than arterials at lower speeds and for a shorter distance. Collectors connect local roads with arterials and provide access to abutting land uses. Local roads provide a high level of access to abutting land but limited mobility and Figure 5-1 shows a breakdown of roadway ownership, classification, and type.

FIGURE 5-1
Breakdown of Roadway Ownership, Classification and Type

Roadway Ownership



Roadway Classification



Roadway Type

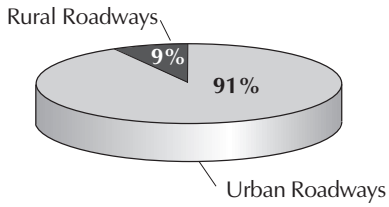
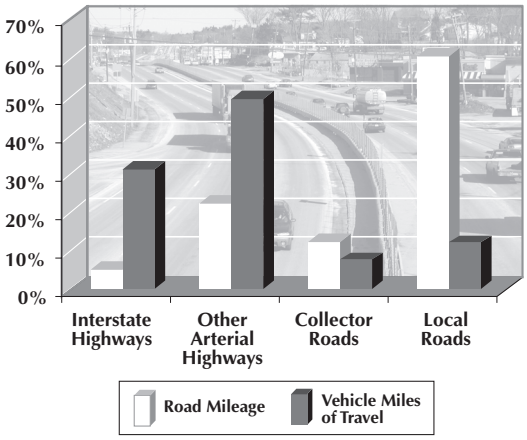


FIGURE 5-2
Roadway Classification and VMT

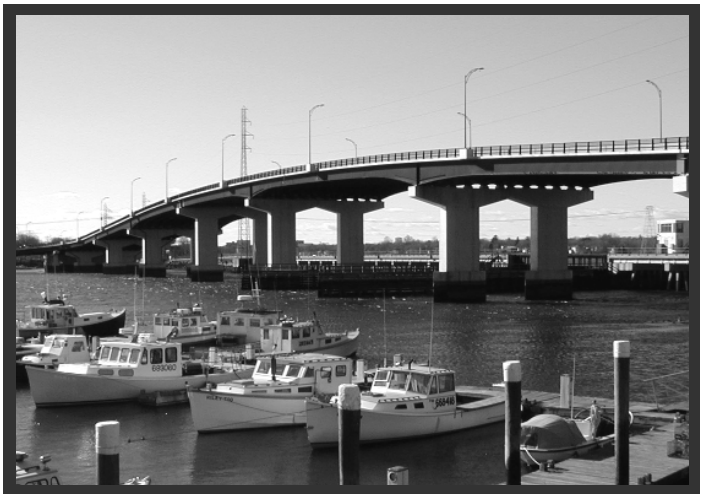


Over time the nature of a road can change as the nature and character of a community evolves. For example, Route 9 which was constructed as an arterial route connecting the western part of the state to the urban core now also serves a more local function as it traverses community centers and provides access to extensive commercial development. Changes in roadway characteristics often result in operational adjustments: speed limits may be reduced, intersections may be signalized, and access points may be increased. Nevertheless, the underlying purpose and resulting classification of the roadway does not typically change. While segments of Route 9 may serve a more local purpose, it still remains an arterial highway which provides an important link between regions of the commonwealth.

In response to the evolving characteristics of, and community concerns about, some of the state's roadways and their impacts on the communities through which they traverse, MassHighway has formed a task force to examine how highway projects impact historic and rural areas. The goal of the task force is not to produce new design standards for historic and rural areas, but rather to improve the way in which MassHighway designs, constructs, and reviews projects in these sensitive areas. It is useful to note that MassHighway does have a procedure in place that allows for consideration of design waivers. Communities that would like design waivers are urged to submit requests as early in the design process as possi-

ble. This allows public support to be assessed at, or prior to, the submittal of 25% plans and also can help to contain project costs.

The daily vehicle miles traveled (VMT) by all forms of motor vehicles in the MPO region in 1995 was approximately 62.5 million miles. The vast majority of this travel, approximately 50.2 million miles, occurred on arterial highways, while 4.7 million miles occurred on collector roads and 7.5 million occurred on local roads. Figure 5-2 shows a comparison of regional roadways by classification with the percent of vehicle miles of travel that type of roadway handles. As shown in the figure, arterials carry the majority of daily traffic, while comprising less than 25% of the roadway mileage.



Veteran's Memorial Bridge

The Massachusetts Highway Department maintains a pavement management system that rates the pavement quality on the Interstate Highway System. Under this system, a pavement serviceability index (PSI) is calculated for each interstate segment encompassing both road roughness and pavement distress. The PSI of a roadway decreases over time due primarily to repeated load applications and environmental factors. A roadway segment with a PSI of 2.5 or less is a candidate for immediate improvement, while those with a PSI of between 2.5 and 3.0 should be considered for rehabilitation in the short term. As of 1998, approximately 5% of the interstate system statewide was in need of immediate attention, while 14% was projected to need rehabilitation in the near future. In the MPO region, approximately 51 centerline miles of interstate have been identified as candidates for rehabilitation, with approximately 8 miles being rated in poor condition and 43 miles in fair condition.

Bridges in the MPO Region

There are 1,516 roadway bridges in the MPO region. The average age of the region's bridges is 39.5 years, while the median date of construction is 1963. The Massachusetts Highway Department maintains a statewide bridge management system. As part of this system, each bridge in the state is periodically inspected and the results of the inspection are tabulated in the Statewide Bridge Inventory.

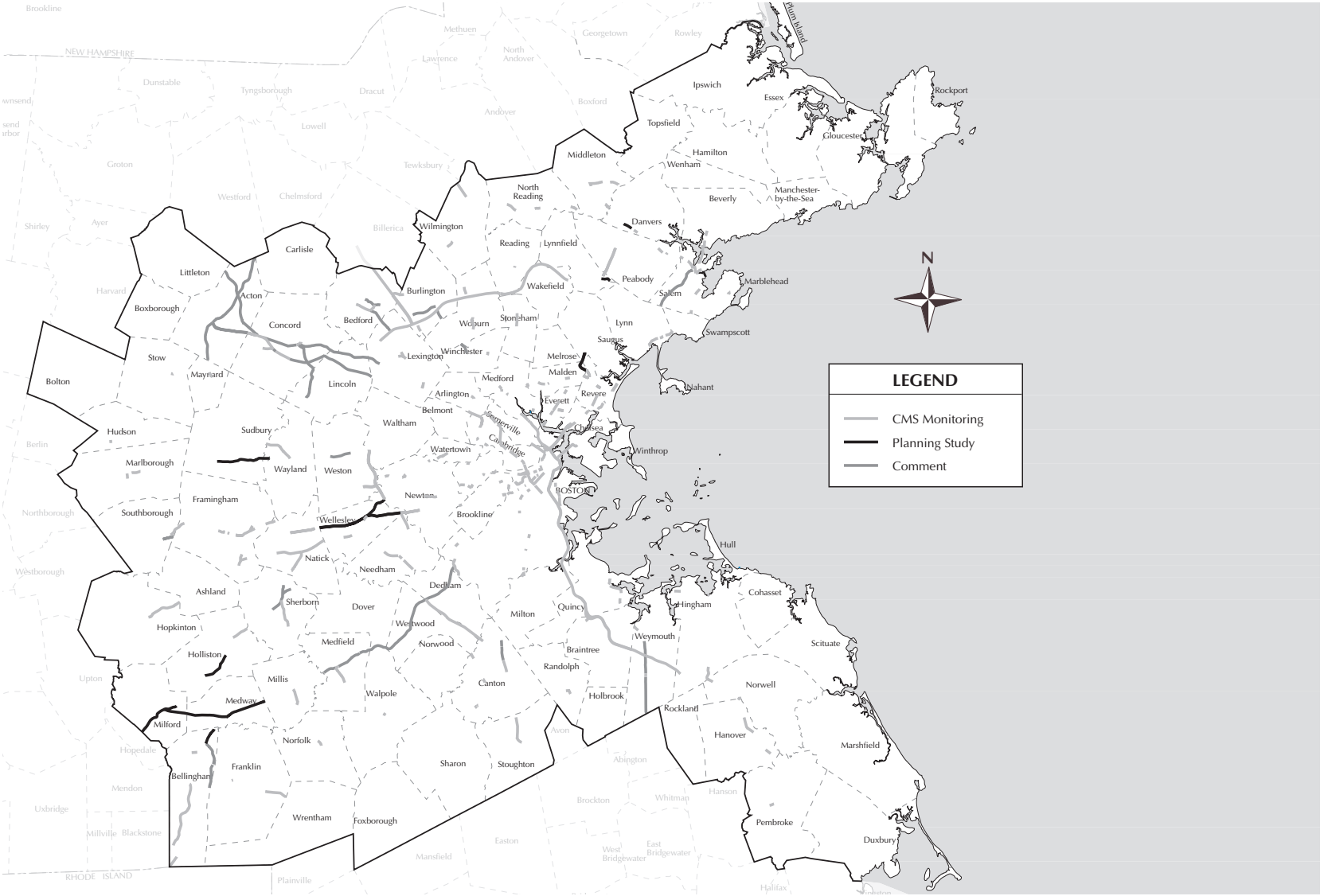
The bridge inventory rates bridges according to national standards developed by the American Association of State Transportation and Highway Officials (AASHTO). Under the AASHTO standards, bridges are assigned to one of three classifications: meets standards, is functionally obsolete, or is structurally deficient.

A bridge is rated as functionally obsolete if it fails to meet current traffic demands and/or highway design standards. Evaluation criteria include

Table 5-2
Classification of Bridges by Owner

Owner	Total	Meeting Standards	Functionally Obsolete	Structurally Deficient
MassHighway	940	537	295	108
City/Town	255	133	75	47
MassPike	135	84	43	8
MDC	104	45	43	16
MBTA	69	25	28	16
Other State	13	2	11	0
TOTAL	1,516	826	495	195

MAP 5-1
Roadway Mobility Problems by Source of Identification

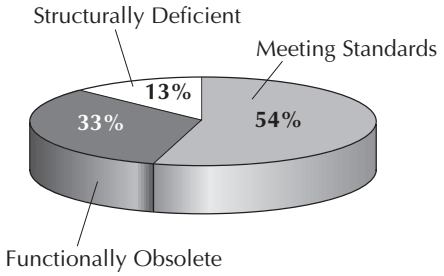


bridge width, traffic volume and characteristics, and roadway condition. Functional obsolescence is not necessarily caused by a deficiency in the bridge itself, nor is it an immediate safety concern.

A bridge is rated as structurally deficient if it has undergone deterioration significant enough to potentially reduce its load-carrying capacity. Structural deficiency is an indication that reconstruction of the bridge is, or can be expected to be, necessary in the near term.

Table 5-2 shows the AASHTO classification of bridges in the MPO region by ownership and Figure 5-3 shows the overall percentage of bridges within the region assigned to the three AASHTO classifications.

FIGURE 5-3
Classification of Bridges



CONGESTION MANAGEMENT

The MPO maintains a Congestion Management System (CMS) to identify areas with mobility problems and examine alternative solutions to addressing those problems. The impetus for developing and operating a CMS began in 1991 with the federal Intermodal Surface Transportation Efficiency Act (ISTEA). ISTEA required state departments of transportation and metropolitan planning organizations to implement a CMS. ISTEA's successor, the Transportation Equity Act for the 21st Century (TEA-21), adopted in 1998, continues the requirement. CMS findings must be considered in the development of a region's Transportation Plan and its Transportation Improvement Program (TIP). Moreover, for air-quality non-attainment areas such as the Boston region, any expansion of roadway capacity must be developed in the context of the CMS. Currently, the Boston region is not in attainment for ozone.

The CMS for the Boston Region Metropolitan Planning Organization (MPO) is designed to locate mobility problems and demonstrate alternative improvements that can be used by decision makers for project planning, priority setting, and programming. The CMS is a two-part sequential process that consists of the periodic CMS report and CMS planning studies. The purpose of the planning studies is to test and recommend improvements that can eventually be incorporated into the Transportation Improvement Program (TIP).

Problems of mobility are identified by three sources: the CMS monitoring program; planning studies; and community comments. The CMS monitoring program identifies problems using performance measures and thresholds of acceptable service. The program is highly systematic in that it covers many facilities and filters out only the most problematic locations.

Planning studies are usually undertaken after some general knowledge of a problem exists. The studies are geared towards exploring problem causes and identifying improvement alternatives. The following list identifies significant planning studies currently underway or completed for the MPO. Studies often constitute the first phase of a project's development, and as such, serve as an indication that the MPO is not only aware of but also is actively investigating a problem.

Accident Warrants - 3 Sudbury Intersections

Assabet River Bikeway Feasibility Study

Bike-to-the-Sea

Bus Route 66/Arterial Signal Retiming Study

Central Corridor Bus Service Study

Central Mass Commuter Rail Feasibility Study

Central Mass Rail Trail Feasibility Study

CMS Field Reconnaissance and Monitoring on Arterials

Commuter Rail Service to Bourne

Commuter Rail Service to I-290 in Northborough

Commuter Rail Service to Milford

Commuter Rail Service to Millis

Congested Signalized Intersections Study - 4 Intersections

Congested Signalized Intersections Study - 5 Intersections

Evaluation of the FHWA Bicycle Compatibility Index Using MetroWest Roadways

Hull Circulation Study

I-93/I-95 Interchange Improvements, Reading

Land Use & Transportation Discussion Paper

Locating New MassHighway Park-and-Ride Lots

Lower North Shore Transportation Improvement Study

Lynnfield Square Traffic Operations Study

MAGIC Subregional Area Study

Park-and-Ride Lots Phase II: Estimating Demand for MassHighway Park-and-Ride Lots

MIT Lincoln Lab Employee Relocation Study

Newton Lower Falls Area Study

North Shore Bikeway Reconnaissance Study

North Shore Corridor Bus Study

Old Colony Impact Study

Preliminary Feasibility of Saxonville Branch Rail Trail

Ramp Metering Study

Route 1 Corridor Bus Study

Route 1 South Corridor Planning Study

Route 117 Field Reconnaissance Study

Route 138 CPS Milton-Canton-Stoughton

Route 139 Traffic Study, Marshfield-Pembroke

Route 2 Long-Range Corridor Planning Study

Route 2 Origin-Destination Study

Route 20 Corridor Study (Weston-Marlborough)

Route 20 Corridor Study from Boston CBD to Rt 128

Route 28 Traffic Signal Improvement Study

Route 3/3A (Cambridge St.) Corridor Study, Burlington-Winchester

Route 9 Corridor Study in Wellesley

Route 9 Traffic Study Newton-Brookline

Route 9/126 Intersection Redesign

Somerville-Boston Bikeway Reconnaissance Study

South Corridor Bus Service Study

Southeast Expressway HOV Lane Before/After Study

Stoneham Bikeway Reconnaissance Study

Suburban Public Transportation Study

Truck Exclusion Mapping Project

University Avenue/I-93/I-95 Regional Traffic Study

The third source, community comments, is more subjective. Problems expressed through comments stem from people's perceptions and expectations of mobility.

The roadways monitored in the CMS program consist of major arterials and freeways. Over 100 road segments are monitored on a regular basis. Monitoring of roadways is conducted every year, but the roadways included in the program are too numerous to allow monitoring each one every year, so the monitoring is performed in a rotation, each roadway being monitored every three to five years. Each roadway covered by the monitoring program is monitored every three to five years. The program covers roadways that are part of the CMS network. The CMS network consists of all

freeways and arterials in the National Highway System (NHS) along with some non-NHS arterials that were added because of their regional significance or in response to comments. Local streets may be monitored on a one-time basis if specific information is needed in a CMS planning activity. Roadway monitoring is conducted September through May during the weekday AM and PM peak commuter periods.

Route 138 Central Street Intersection in Stoughton

Roadway segments monitored in 1998 and 1999 include freeways, arterials, and local streets. Some of these roadways were selected in accord with the rotational scheduling of CMS monitoring, because they were either not measured or they were undersampled in previous years. Other roadways were selected because they were identified as problematic in the 1997 Transportation Plan or in comments made by citizen planning groups or individuals. Finally, some roadways were monitored to support CMS planning studies, such as the MetroWest Subregional Area Study and the Bus Route 66 Arterial Signal Retiming Study.

Two performance measures are used to measure congestion on each roadway segment monitored: average travel speed (in mph) and delay (in minutes). The performance measures are calculated from travel time data. Travel time data are collected using a test vehicle that travels with the flow of traffic (the "floating car" technique). The test vehicle is equipped with a global positioning system (GPS) that records travel times and distances at one-second intervals between checkpoints on the system.

The threshold used to define congestion for arterial segments is based on average travel speed and the level-of-service (LOS) concept presented in the 1994 Highway Capacity Manual (HCM). LOS is a qualitative congestion measure based on quantitative data (average travel speed). Six levels of service are defined. They are given letter designations, from A to F, with LOS A representing the best operating conditions and LOS F the worst. LOS E represents capacity conditions. Congestion is defined as LOS E-F. For arterials, the CMS threshold for LOS E-F is 15 mph. For freeway segments in the HCM, LOS is not directly based on average travel speed as it is with arterials, but on other traffic flow measures. Therefore, a threshold unique to the CMS has been defined that closely reflects congestion found on freeway segments in the Boston Region MPO. This threshold is 40 mph.

Delay is defined as the condition of a vehicle traveling below 5 mph on a freeway or arterial segment (including stopped time), as long as the speed has been lower than 5 mph for at least 3 consecutive seconds. This delay is different from "stopped delay" because not only stops, but times during which a vehicle is moving very slowly, are included in the delay calculations.

Speeds and delays are calculated for every roadway segment monitored. Short segments could show low speeds, but minimal delays. Longer segments may have high average speeds, but significant delays. The most congested segments will have both low speeds and high delays. The CMS roadway congestion threshold in terms of delay, for both arterials and freeways, is ≥ 1 minute.

A different approach to identifying problems on arterial roadways is being tested in the SouthWest Advisory Planning Committee (SWAP) subregion. This pilot study introduces new data elements that expand our knowledge about transportation system performance and help to define

the CMS planning studies that should be undertaken to improve performance.

The CMS's current monitoring program, as explained above, measures the performance of arterial segments using average speed and delay. The SWAP pilot study attempts to identify more precisely the location and cause of congestion problems by shifting the focus from arterial segments to intersections, which is where most congestion problems originate. The new performance measure used to monitor intersections is traffic queue length. Excessive traffic queue length is a good indicator of problems at intersections and of consequent problems on adjacent arterial segments. Data on traffic queue lengths are collected during the AM and PM peak hours, which is when traffic conditions are at their worst.

Route 1 North

The pilot study adds a safety component by plotting the locations of vehicle, bicycle, and pedestrian collisions. The addressing of bicycle and pedestrian issues is also pursued through inventorying existing facilities, such as bicycle lanes along roadways and crosswalks at intersections. This information will help prioritize bicycle and pedestrian planning needs.

Traffic Safety in the Region

Massachusetts has one of the lowest highway fatality rates in the nation, based on measures of fatalities per licensed driver or fatalities per registered vehicle. In fact, the state highway fatality rate is approximately half of the national rate for these two measures. One of the contributing factors to this record is the effort the state makes to identify and correct high accident locations. The state annually assesses crash data to determine which intersections might be candidates for remedial measures. The Massachusetts Highway Department tracks crash locations as reported in state police reports, local police reports, and operator's accident reports.

Crash locations are ranked based upon the number and severity of crashes occurring over a given three-year period, with each crash involving a fatality being assigned a weight of ten, each crash involving bodily injury a weight of five, and each crash involving property damage a weight of one. Map 5-2 (at the end of the chapter) shows the general location of the top crash locations within the MPO region for the years 1996 through 1998. The majority of high-crash locations occur on the major arterial roadways. In addition to loss of life, injury and property damage, crashes also contribute to increased delay that can cause traffic to be tied up for several hours while the crash is investigated and cleared.

The Central Artery Project

The Central Artery/Tunnel (CA/T) Project is the largest, most complex roadway project in American history. The project includes a tunnel under Boston Harbor, a 14-lane crossing of the Charles River, an eight-to-ten-lane underground expressway to replace the Central Artery, and the extension of I-90 to Logan Airport.

Planning for the Central Artery/Tunnel Project began in 1982. Congress approved funding and the project's basic scope in 1987. Construction began in 1991 on the Ted Williams Tunnel and a bypass road through South Boston. The first project milestone, the Ted Williams Tunnel under Boston Harbor, opened to traffic in December

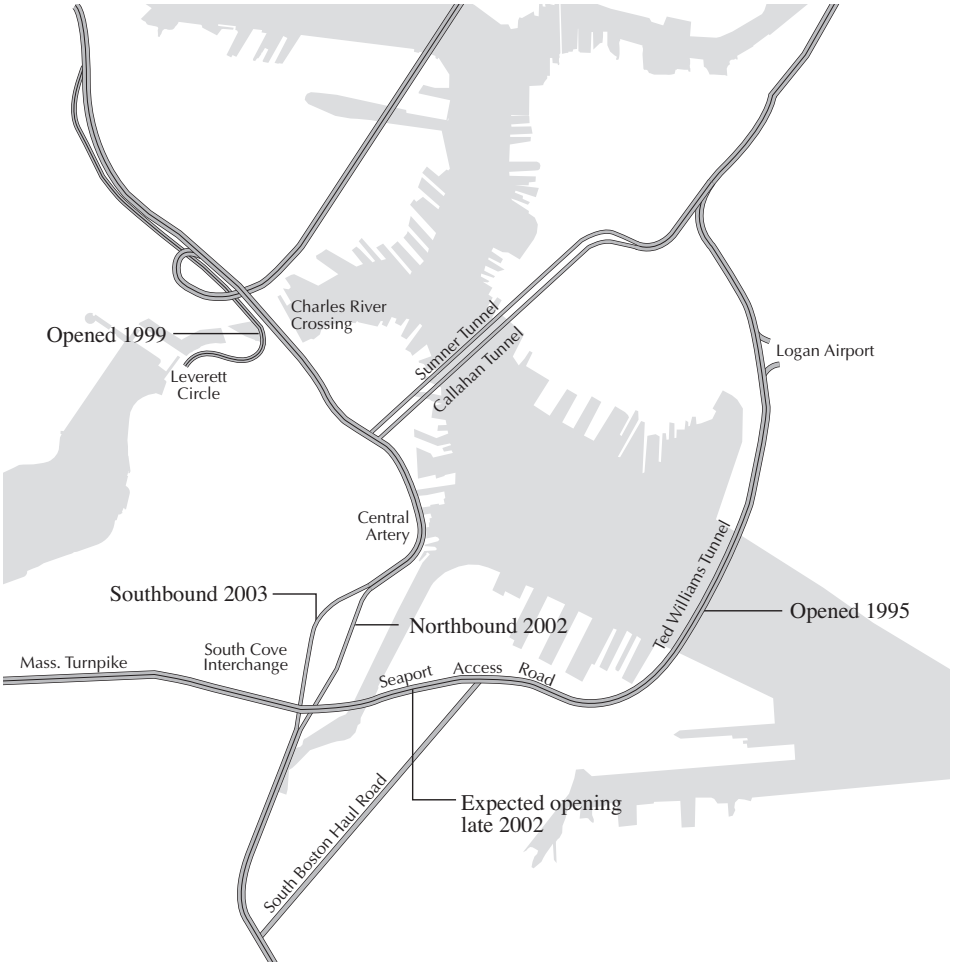
1995. The second major milestone, the Leverett Circle Connector Bridge, opened in October 1999.

As of November 2001, final design was about 98 percent complete, construction 74 percent complete. The I-90 extension via the Ted Williams Tunnel to Logan Airport is expected to open in 2002. The northbound lanes of the underground Central Artery open in 2002, the southbound lanes in 2003. Demolition of the elevated Central Artery then will commence, with the entire project, including restoration of the surface, completed by 2004. With construction scheduled from 1991 to 2004, the region's economic vitality depends on the project allowing the city to continue to operate.

Opened in 1959, the Central Artery comfortably carried about 75,000 vehicles daily. Today it carries upwards of 190,000. The new Central Artery will carry about 245,000 vehicles a day by 2010. The Ted Williams Tunnel, to be opened to all traffic when the extension is complete, is expected to carry 90,000 vehicles a day, compared to 25,000 a day with traffic restricted to commercial vehicles.

Altogether, the CA/T project is building 161 lane-miles of roadway in a 7.5-mile corridor, about half in tunnels, including four major highway interchanges. The old road has 27 on- and off-ramps; the new one will have just 14. The project will create new parks and open space, including 105 acres at Spectacle Island, 33 acres along the Charles River, and 7 acres as part of an expanded Memorial Stadium Park in East Boston. Three quarters of the 27 acres where the existing elevated highway now stands will remain open.

MAP 5-3
Central Artery Project Status



The deepest point of the underground roadway is 120 feet down, beneath the Red Line subway tunnel at Dewey Square (Atlantic Avenue and Summer Street). The highest point is at State Street, where the roadway passes over the Blue Line subway tunnel and the roof of the highway is the street above.

The underground Central Artery will surface near North Station and cross the Charles River on a 10-lane bridge. The bridge will be the widest cable-stayed bridge in the world, and

the first in the United States with an asymmetrical design.

The Metropolitan Highway System

In 1997, the Massachusetts Legislature created the Metropolitan Highway System (MHS) and placed it under the authority of the MassPike. The MHS encompasses the Central Artery, the Central Artery North Area (CANA), the Seaport Access Road, the South Boston Bypass Road, the three harbor tunnels (the Sumner, Callahan, and Ted Williams) and the Massachusetts Turnpike Extension. The MHS does not include the Mystic-Tobin Bridge, operated by Massport.

The MassPike is overseeing the completion of the construction of the CA/T project and will be responsible for the day-to-day operation and maintenance of all of the MHS components. The MassPike maintains separate accounts for the MHS and the Western Cost Center (the Route 128 interchange west to New York).

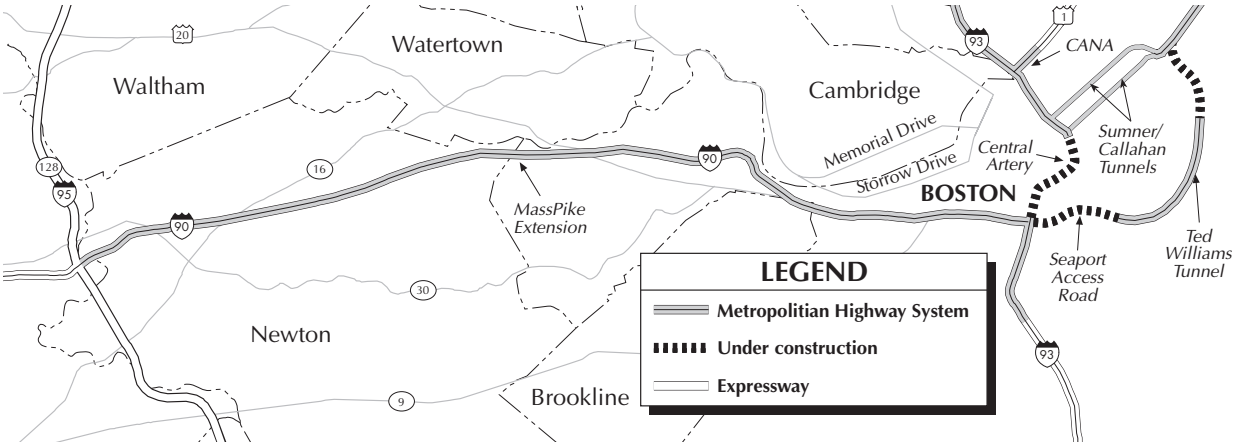
Traffic using the MHS will be monitored by the most advanced traffic management and incident response system in the world, including more than 400 video cameras, 130 electronic message signs, 30 infrared height detectors, and six emergency response stations in operation 24 hours a day.

Other Current or Planned Highway Expansions

In addition to the Central Artery project, several other capital expansion projects are ongoing or planned for the near future. These projects include, but are not limited to:

- The realignment and widening of Route 140 in Franklin. The purpose of this 1.2 mile long project is to widen Route 140 from one lane in each direction to two lanes in each direction from I-495 to Garelick Farms. The alignment of Route 140 will also be altered to accommodate an improved diamond interchange.
- The addition of travel lanes on Route 128 between Randolph and Wellesley. This 13.7 mile long project involves the addition of one travel lane in each direction to increase capacity on a segment of Route 128/I-95. Other towns within the project limits are Canton, Westwood, Dedham and Needham. The project also includes modifications to bridges and the redesign of the Highland Avenue interchange in Needham. The early design phases are active. The project is still under environmental review with MEPA.
- The addition of travel lanes on Route 3 from Burlington to the New Hampshire border.

Map 5-4
The Metropolitan Highway System



Measures to Increase Automobile Occupancies and Efficiencies

The member agencies of the Boston Region MPO have taken numerous measures to provide alternative driving options. Measures that increase vehicle occupancy, help in relieving congestion, or allow for a more efficient use of the roadway network fall under the broad categories of Transportation Demand Management (TDM) and Intelligent Transportation Systems (ITS). TDM measures involve a wide range of strategies such as promoting ride-sharing, allowing for flextime or alternate work schedules, or subsidizing the cost of non-SOV travel.

CARAVAN vanpool

Congestion can be reduced not only by removing vehicles, but by getting them through toll booths more efficiently, and by letting drivers know of congestion ahead so they can plan alternative routes or times for travel. Congestion is not only a nuisance for those in it, but also an expense for businesses and employers, and a source of pollution.

The average round-trip commuting distance for all commuters in Massachusetts is 26 miles. In 1988, it cost drive-alone commuters $2,272 a year to travel this distance. Based on 2001 statistics, drive-alone commuters making a 26-mile daily round trip pay $4,047 annually - an increase of 78%.

For commuters with longer work trips, the cost increases have been more dramatic. For example, the cost of driving alone, 50 miles each way, jumped from $4,816 in 1988 to $8,431 in 2001- an increase of $3615. Commuting 100 round-trip miles a day in a two-person carpool can cut this cost in half. In addition, the cost of commuting in a 14-passenger vanpool, 50 miles each way, was only $1,366 a year in 2001 - an increase of only $462 since 1988.

CARAVAN

As Massachusetts' statewide commuter services organization, CARAVAN provides assistance to commuters, companies, and Transportation Management Associations (TMA) throughout the Commonwealth. A private, nonprofit organization, CARAVAN receives funding from the Massachusetts Highway Department and the Federal Highway Administration.

CARAVAN's 1-888-4-COMMUTE toll-free information line phone number and the "Commuter Information Center" (www.commute.com) provide information from over 50 public and private transportation providers statewide. CARAVAN also operates RideSource, a comprehensive, multimodal commute management system. Callers who become subscribers in the computerized ridematching system receive a customized report containing, on average, 15 transportation alternatives to driving alone. These options include rail, bus, boat, carpool, and vanpool.

The CARAVAN Vanpool consists of approximately 150+ vehicles, with origins all over Massachusetts and Southern New Hampshire. CARAVAN's RideGuide, updated monthly, lists the seats available on commuter vanpools.

CARAVAN administers the statewide Transportation Management Association (TMA) Assistance Program. TMAs are private, nonprofit groups formed by businesses to facilitate private sector involvement in addressing transportation issues. TMAs encourage transit, shared-ride commuting,

and variable work hours to reduce traffic congestion. Some TMAs operate shuttle services among work sites or connecting to transit stops.

CARAVAN analyzes worksite commuter transportation patterns and needs and makes recommendations for transportation demand management (TDM) programs. Programs include parking management strategies, alternative work hour programs, on-site transit pass sales and subsidies, Commuter Choice tax benefits, Commuter Checks, Guaranteed Ride Home services, and the formation of shuttles to transit.

CARPOOLS

According to 1990 U.S. Census data, 12.8% of commuters across the country go to work in a carpool containing 2 or more people. In Massachusetts, 10.8% of commuters travel in 2-to-5 person carpools.

Carpoolers heading to Boston from the north and south can use the High Occupancy Vehicle (HOV) lanes on Route 93 North (for two miles, from Mystic Avenue in Medford to the Route 1/93 merge) and on Route 3 South (for six miles, from Furnace Brook Parkway in Quincy to Freeport Street in Boston). Operated by MassHighway, the lanes are open during the peak morning and evening commuting hours. Many worksites provide preferential parking for carpools, often located near main building entrances.

In addition, commuter groups of three or more can register for the FAST LANE program as a carpool. They pay an annual carpool fee based on the MassPike zone(s) that they travel, which is a considerable discount. To date there are over 1,500 registered carpools in MassPike's program.

VANPOOLS

Vanpooling is a cooperative agreement in which 7 to 15 commuters with common schedules share the ride to work. There are cost savings, and other benefits provided to vanpoolers. Massachusetts offers free registration and license plates to all qualified vanpools. Like MBTA commuters, vanpool passengers are eligible to receive a discount on their personal automobile insurance.

In cooperation with the Central Artery/Ted Williams Tunnel Project, the MassPike, the Massachusetts Highway Department, the MBTA, the City of Boston, the MDC, and private property managers, CARAVAN has secured over 100 free and discounted parking spaces. The Boston Transportation Department has designated Vanpool Boarding Zones,conveniently located on major commuting routes throughout the city.

ITS

Intelligent Transportation Systems (ITS) involves the integration of the latest in computers, electronics, communications and safety systems. The Boston Region MPO has participated in the development of Intelligent Transportation Systems (then Intelligent Vehicle Highway Systems) activities in Eastern Massachusetts and the state since 1992. Boston was one of the first cities to complete an FHWA-sponsored metropolitan area deployment plan for ITS, in 1993. The two-phased plan extends to the year 2000. Currently, the various transportation agencies and local governments in the region are revisiting the original ITS plan in order to adopt a new Regional ITS Architecture. This will bring the regional ITS deployment plan into conformity with the Federal Highway Administration's (FHWA) new ITS rule and the Federal Transit Administration's (FTA) new ITS policy.

A new Regional Traffic Operation Center (RTOC) is being constructed in South Boston.This operation center will include eight stations that will assist patrol officers in incident management and detection. Other responsibilities include daily data collection and surveillance. Also implemented is a Motorist Assistance Program that will provide roadside assistance to motorists.

The Central Artery project is incorporating ITS and other advanced technologies into its design, including intensive infrastructure for vehicle detection and surveillance, automatic incident detection, and emissions monitoring.

The I-93 Integrated Transportation Management System Operational Test will cover a 4-mile segment of I-93 immediately north of downtown Boston, including the HOV lane, parallel arterials and the Orange Line. The project will gather real time data on these transportation links, simulate these data and forecast travel time 5-10 minutes into the future on each link. This information will be conveyed to motorists via variable message signs and eventually via in-vehicle devices.

In addition, the Boston Region MPO has contributed to and supported the activities discussed below.

Incident Management

Boston Region MPO staff supported the State's Traffic Management Team with technical analysis and administrative services on the following programs: *SP program, including the development of Public Service Announcement for the program; Motorists Assistance program; and the development of an Operations Manual for Incident Management.

IVHS Strategic Deployment Plan for Metropolitan Boston

During the development of the plan, Boston Region MPO staff served on the technical committee overseeing the project. The plan recommended an Intelligent Vehicle Highway Systems (IVHS) Architecture and the following priority functions:

- Incident Management
- Trip Planning
- Demand Management
- Electronic Toll Collection
- Traveler Information
- Route/Mode Guidance
- Construction Management

Technical Support in MassHighway's Consultant Selection Committees

At the request of MassHighway, the Boston Region MPO staff participated in the evaluation of consultant teams who were hired to execute recommendations from the Early Deployment Plan. Examples include the programs on Motorists Assistance and Advanced Traveler Information Services.

ITS Program Evaluations

The Boston Region MPO performed evaluations of benefits, including delay and air quality reductions, resulting from the application of ITS programs such as Samaritania and the *SP program. Other activities supported by the MPO and its staff include:

- Feasibility of Ramp Metering for Selected Highways: Modeling and other screening tools were used to test the feasibility of installing ramp meters at on-ramps along I-95/Route 128 and selected other locations.
- I-93 Integrated Traffic Management System Operational Test: I-93 and arterial roads in Somerville, Medford and Boston were modeled to simulate incident management strategies for incidents at various segments along the highway.
- HOV Analysis and Monitoring: As part of the Route 128 Transportation Improvement Project, the regional impacts from various HOV, Incident Management, and Transportation Demand Management scenarios were modeled.
- MBTA "B" Green Line Signal Priority Strategies: As part of the Route 20 Corridor Planning Study, the MPO staff evaluated several scenarios pertaining to signal priority along Commonwealth Avenue for the Green Line.
- Traffic Signal Coordination Projects: As part of its corridor planning studies, the MPO routinely uses signal coordination, an ITS strat-

egy, to test operational improvement along arterials.

- ITS Massachusetts and ITS America: MPO staff have been active members of the Technical and Publications Committees of ITS Massachusetts.

SmarTraveler®

In 1992, SmartRoute Systems, in partnership with MassHighway, began operation of the SmarTraveler® Operational Test in Boston, funded by the FHWA Office of Intelligent Transportation Systems and Traffic Operations. SmarTraveler® delivers real-time, on-demand, location-specific traffic and transit information to users with a touch-tone phone, free of charge (617-374-1234 or * 1 on cellular). Traveler information is also disseminated through on-line services, television, radio, and print media. The SmarTraveler® service has been evaluated by MassHighway and has proven highly effective at modifying traveler behavior, and is being incorporated into long-term congestion management plans.

The service area in Eastern Massachusetts covers approximately 1,400 square miles, encompassing 122 communities, an estimated 2.9 million licensed drivers, and 2.8 million registered vehicles. Eighteen separate roadways or roadway segments totaling 701 miles and carrying 1.7 million vehicles daily are covered. The service also includes the MBTA's commuter rail, bus and subway systems.

The SmarTraveler traffic and transit surveillance consists of cameras at strategic locations around greater Boston; "mobile probes" reporting to the operations center by mobile phone or two-way radio; monitoring of 350 publicly available radio frequencies for emergency vehicles, and direct lines to the State Police, Amtrak, MassHighway, and the MBTA.

SmartRoute Systems operates the Interim Operations Center (IOC) for Boston's Central Artery/Third Harbor Tunnel project. Project responsibilities include collecting and communicating data to a variety of target audiences, including the general traveling public, the media, and project personnel. The IOC is a 24-hour-a-day, 7-day-a-week operation that has been operating since 1995.

FAST LANE

FAST LANE is an electronic toll collection system instituted in phases along the Massachusetts Turnpike beginning in October 1998. Vehicles in the FAST LANE system are equipped with a transponder mounted to the windshield behind the rear view mirror. The transponder signals that a vehicle is going through a designated toll plaza. The cost of the toll is then automatically deducted from or charged to a pre-established account. Registered vehicles with FAST LANE transponders can then pass through toll booths without stopping or waiting.

FAST LANE is in operation statewide on the Massachusetts Turnpike, at the Ted Williams Tunnel, the Sumner / Callahan Tunnels, the Tobin Bridge, and is interoperable with EZPass, the electronic toll system used in New York, New Jersey, Delaware, Pennsylvania, West Virginia, and Maryland.

Conclusion

The regional roadway infrastructure, while in fairly good condition, is relatively mature. As such, one of the major challenges in the transportation plan process is determining the appropriate level of funding to reserve for system rehabilitation and reconstruction, while also providing sufficient capital to judiciously expand the existing roadway system or maximize system usage. As with most transportation plan issues, an underlying concern affecting the MPO's decision-making process will be the interaction between transportation funding decisions and local land-use and regional economic development.

Additionally, it is important for the MPO to focus on measures to improve the efficiency of the existing system through transportation demand management measures and ITS, and to ensure

that the character and historical quality of the communities of the region is preserved.

Accordingly, issues that are addressed in subsequent chapters of this plan include:

- Identifying the appropriate level of investment in the current system, sufficient to maintain and improve the region's existing roadways and bridges.
- Selecting capital expansion projects to improve mobility where needed and prudent.
- Promoting strategies for alternatives to single-occupancy travel and taking advantage of technology to improve the efficiency of the roadway system
- Analyzing the impact of transportation decisions on land-use and regional economic development.

MAP 5-2
Highest Crash Locations
1996-1998

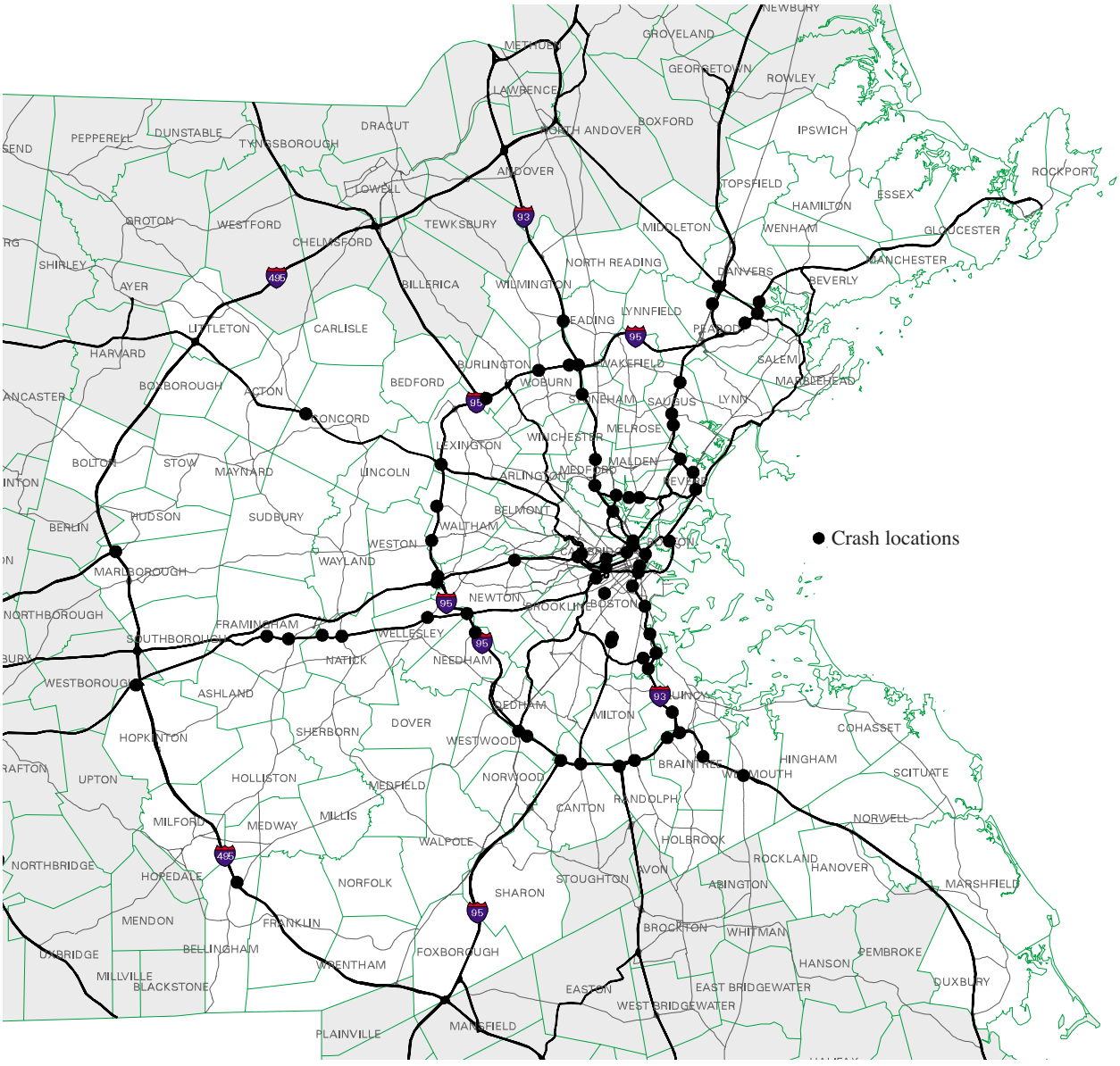


Table 5-3
Crash Locations

City or Town	Intersecting Streets	City or Town	Intersecting Streets
Bellingham	Hartford Avenue & I-495	Lexington	I-95 & Route 2
Boston	Leverett Circle	Marlborough	I-290 & I-495
Boston	Route 1 & Route 129	Medford	Route 16 & the Fellsway
Boston	Charlesgate West & Storrow Drive	Medford	Mystic Valley Pkwy & I-93
Boston	Airport Road	Medford	Roosevelt Circle & I-93
Boston	Route 1A & I-93	Milton	Granite Avenue & I-93
Boston	Kneeland Street & I-90	Natick	Route 27 & Route 9
Boston	Route 1 & I-93	Natick	Route 9 & Speen Street
Boston	Columbia Road & I-93	Needham	Route 128 & Highland Avenue
Boston	Mass Ave & Melnea Cass Blvd	Newton	Centre Street & Washington Street
Boston	Brookline Avenue & the Riverway	Peabody	Lowell Street & Route 1
Boston	Charles Circle & Embankment Road	Peabody	Andover Street & Route 128
Boston	Cambridge Street & Soldiers Field Road	Peabody	Lowell Street & Route 128
Boston	Cambridge Street & I-90	Quincy	Furnace Brook Rotary & I-93
Boston	Blue Hill Avenue & Talbot Avenue	Quincy	Route 24 & I-93
Boston	American Legion Hwy & Blue Hill Avenue	Quincy	Route 28 & I-93
Boston	Adams Street & Gallivan Boulevard	Reading	I-95 & I-93
Boston	Freeport Street & Morrissey Boulevard	Revere	Bell Circle
Boston	Gallivan Boulevard & Neponset Avenue	Revere	Copeland Circle
Boston	Columbus Avenue & Tremont Street	Revere	Brown Circle & Squire Road
Braintree	Granite Street & I-93	Saugus	Route 1 & Route 129
Braintree	Route 3 & I-93	Saugus	Main Street & Route 1
Braintree	Route 3 & Union Street Rotary	Saugus	Essex Street & Route 1
Burlington	Middlesex Turnpike & I-95	Somerville	I-93 & Mystic Avenue
Cambridge	Mass Ave & Memorial Drive	Waltham	Route 128 & Winter Street
Canton	I-95 & I-93	Waltham	Route 128 & Route 20
Canton	I-93 & Route 138	Wellesley	Route 128 & Route 9
Concord	Route 2 & Route 2A Rotary	Wellesley	Route 16 & Route 9
Danvers	Route 1 & Route 114	Weston	Route 128 & I-90
Danvers	Endicott Street & Route 128	Weston	Route 128 & Route 30
Dedham	Route 1 Ramp & I-95	Westwood	East Street Rotary & Route 128
Everett	Route 16 & Route 99	Weymouth	Route 18 & Route 3
Everett	Route 16 & Santilli Circle	Wilmington	Route 129 & I-93
Framingham	Route 30 & Route 9	Woburn	Route 128 & Route 38
Framingham	Main Street & High Street	Woburn	Route 128 & Washington Street
Hopkinton	I-90 & I-495	Woburn	Montvale Avenue & I-93

CHAPTER

6

ENVIRONMENTAL JUSTICE ASSESSMENT OF THE TRANSPORTATION SYSTEM

In order to comply with its policy promoting the equitable sharing of the transportation system's benefits and burdens, the MPO both conducts the ongoing consultation process on environmental justice discussed in Chapter 3 and has performed a detailed, systems-level analysis of transportation equity in the region. The MPO established an understanding with the Environmental Justice Committee to guide the development of a method and apply measures for assessing the benefits and burdens of the region's existing and proposed transportation system. The measures focus on mobility, accessibility, and environmental impact concerns.

The results of the systems-level analysis will be used as input in the ongoing consultation process on environmental justice. Highlights of the results of the analysis are presented in this chapter. The analysis examined the impacts, in terms of various performance measures, of this Regional Transportation Plan's Recommended Plan on various populations. These populations included both the populations of concern defined below, such as low-income and minority populations, and other, "nontarget" populations. The impacts of the Recommended Plan are indicated by comparing conditions under that plan in 2025, in terms of the performance measures, with conditions under a "no-build" scenario in that year. The impacts of a second build alternative, "Build 2," were also examined, upon the recommendation of the Environmental Justice Committee.

ENVIRONMENTAL JUSTICE DEFINITION

In 2002, in collaboration with the Ad Hoc Environmental Justice Committee, the MPO adopted the following definition of environmental justice:

> Environmental justice requires the MPO to examine the benefits and burdens, historically, currently, and planned in the future, to ensure that minority and low-income communities are treated equitably in the provision of transportation services and projects.

This is the foundation that guides MPO environmental justice policy and analysis.

THE POPULATIONS OF CONCERN (TARGET POPULATIONS)

The populations of concern are specific population groups and neighborhoods within the MPO region that were identified by the Environmental Justice Committee for analysis. They were used in a systemwide mobility, accessibility, and environmental analysis based on traffic analysis zones (TAZs). A TAZ is an aggregation of census geography based on population and numbers of trips. The TAZ was the geographic unit for the analysis.

The target populations are:

- Low income – The MPO median household income in 2000 was approximately $55,800. A low-income TAZ was defined as having a median household income at or below 75% of this level ($41,850). Figures 6-1 and 6-2 show the geographic distribution of low-income population areas.
- Minority – Of the MPO population in 2000, 21.4% was made up of minorities (nonwhite and Hispanic). A minority TAZ was defined as having a percentage of minority population greater than 21.4%. Figures 6-1 and 6-2 show the geographic distribution of minority population areas.
- Not fluent in English – In 2000, 4.1% of the MPO residents age five years and older were not fluent in English. These TAZs were defined as areas in which over 4.1% of the residents five years and older were unable to speak English fluently. Please refer to Figures 6-3 and 6-4 for a map showing the distribution of these population areas.
- Zero-vehicle households (0VHH) – Approximately 15.4% of the households in the MPO region owned no motor vehicle in 2000. A 0VHH TAZ was defined as an area in which more than 15.4% of all households were without autos. Figures 6-5 and 6-6 show the geographic distribution of 0VHH population areas.

Table 6-1 gives for each of the groups described above, the total numbers of residents or households in the region that fit the criteria and that do not fit the criteria.

The 2025 demographic forecasts assumed the same distributions of the populations of concern as were observed in the 2000 census and that their growth rate will be the same as the rate that the Metropolitan Area Planning Council has forecast for the overall population of the given area. The build and no-build scenarios used the same demographic forecasts.

In addition to the systemwide analysis the MPO undertook a community-level needs analysis. The Environmental Justice Committee identified seventeen target neighborhoods (localized groups of TAZs) based on the density of low-income and minority populations residing in them. An accessibility analysis was performed on these target neighborhoods.

The target neighborhoods are:

- Allston/Brighton
- Cambridge
- Chelsea

TABLE 6-1
Target and Non-Target Populations and Thresholds

Population	Total Number in Region, 2000	Threshold (at TAZ level)
MPO (101 communities) population	3,066,200	na
MPO (101 communities) households	1,277,500	na
Low-income households	319,400	Median income less than $41,850
Non Low-Income households	958,100	Median income $41,850 or greater
Minority population	657,100	Minority population greater than 21.4%
Non-Minority population	2,409,100	Minority population 21.4% or less
Not-fluent-in-English population	118,100	Non-fluent population greater than 4.1%
Fluent-in-English population	2,948,100	Non-fluent population 4.1% or less
Zero-vehicle households	442,300	Zero-vehicle households greater than 15.4%
Non-zero-vehicle households	835,200	Zero-vehicle households 15.4% or less

Source: CTPS – 5/2003

Figure 6–1

Environmental Justice Analysis

Traffic Analysis Zones with Large Minority and/or Low-Income Populations in 2000:

Boston Region MPO

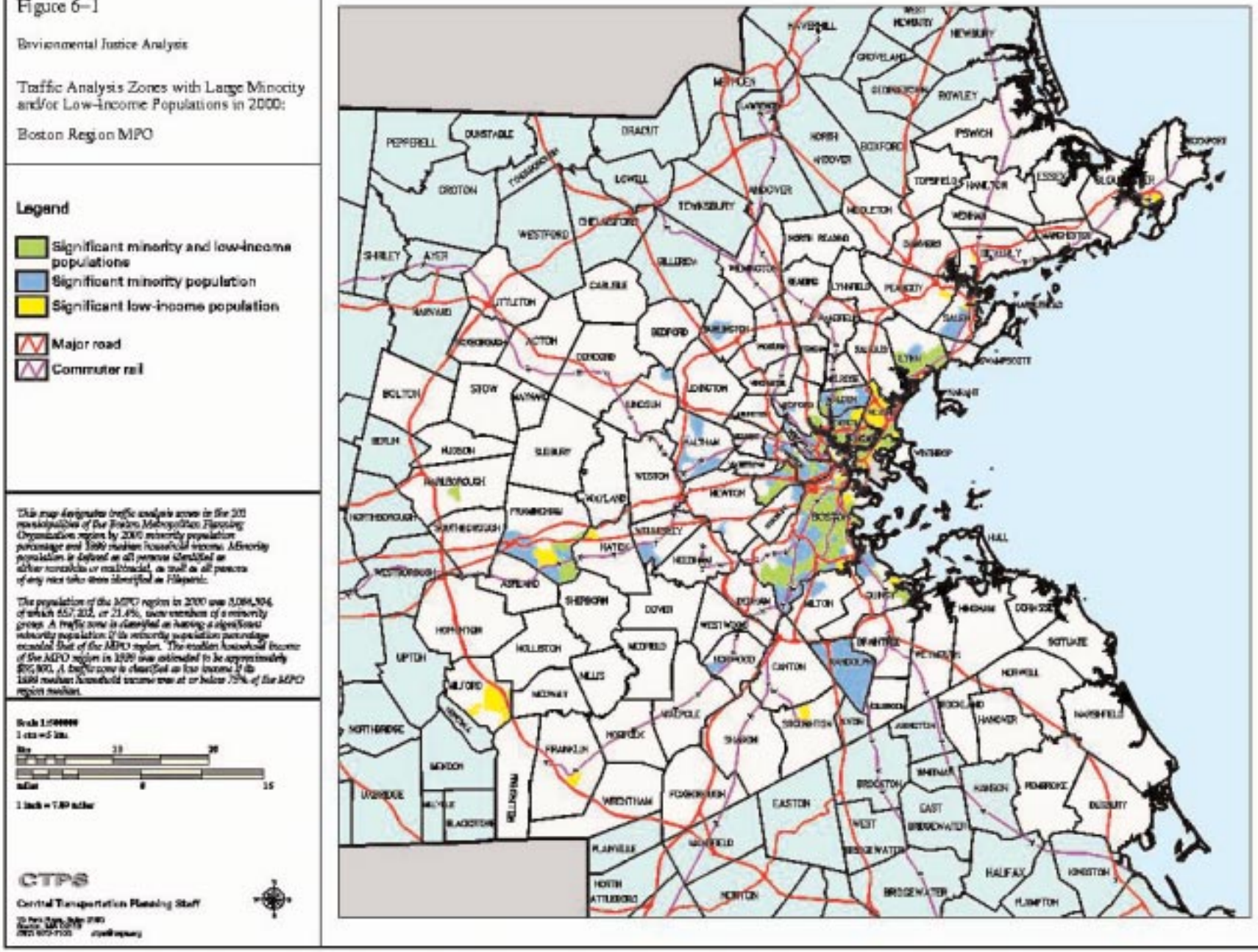
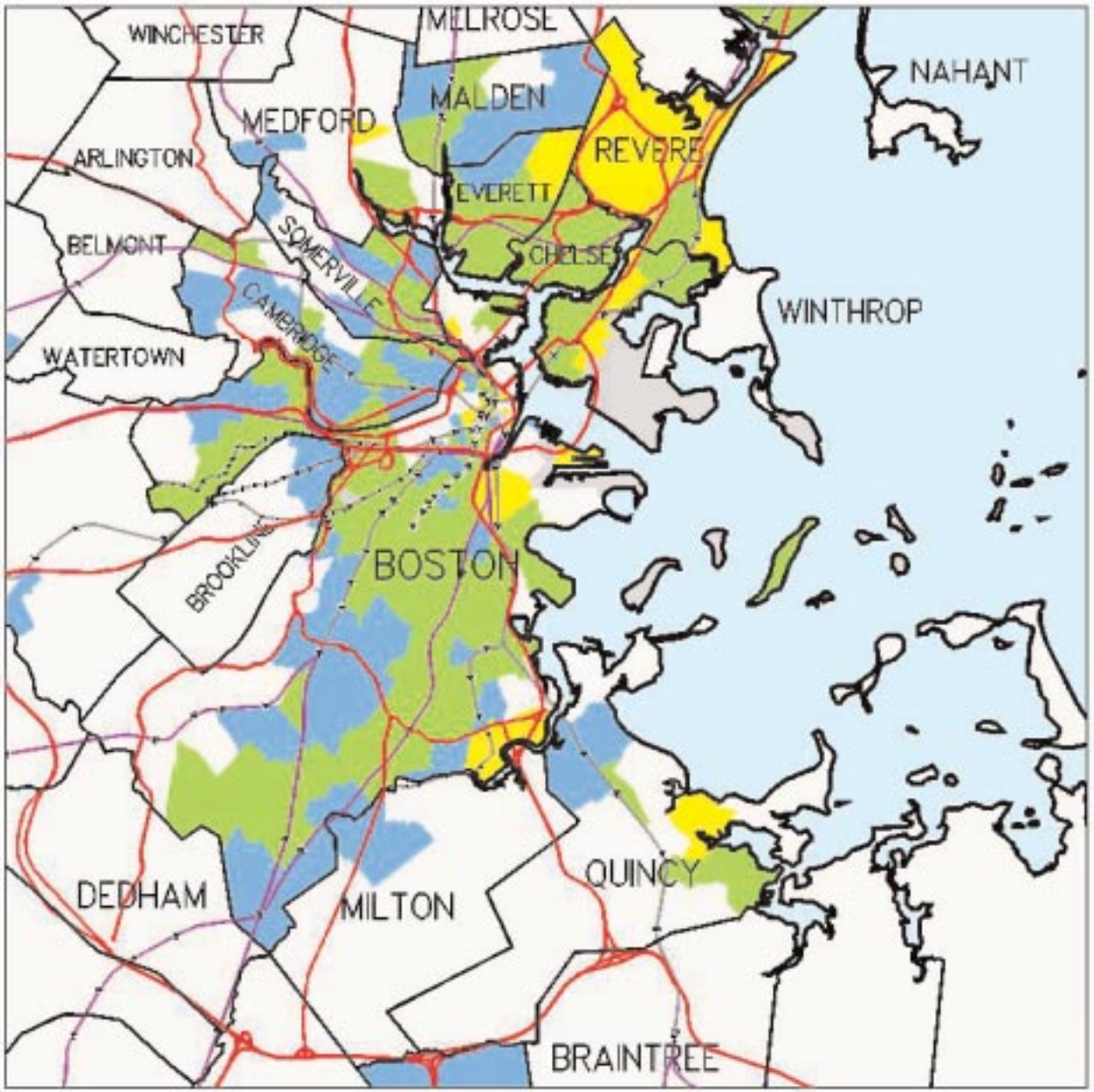


Figure 6–2

Environmental Justice Analysis

Traffic Analysis Zones with Large Minority and/or Low-Income Populations in 2000:

Boston Region MPO's Urban Core



Legend

- Significant minority and low-income populations
- Significant minority population
- Significant low-income population
- Major road
- Rapid transit
- Silver Line, Phase I
- Commuter rail

This map designates traffic analysis zones in the 101 municipalities of the Boston Metropolitan Planning Organization region by 2000 minority population percentage and 1999 median household income. Minority population is defined as all persons identified as either nonwhite or multiracial, as well as all persons of any race who were identified as Hispanic.

The population of the MPO region in 2000 was 3,084,304, of which 657,212, or 21.4%, were members of a minority group. A traffic zone is classified as having a significant minority population if its minority population percentage exceeded that of the MPO region. The median household income of the MPO region in 1999 was estimated to be approximately $50,800. A traffic zone is classified as low income if its 1999 median household income was at or below 75% of the MPO region median.

Scale 1:150000

1 cm = 1.5 km

1 inch = 2.37 miles

CTPS

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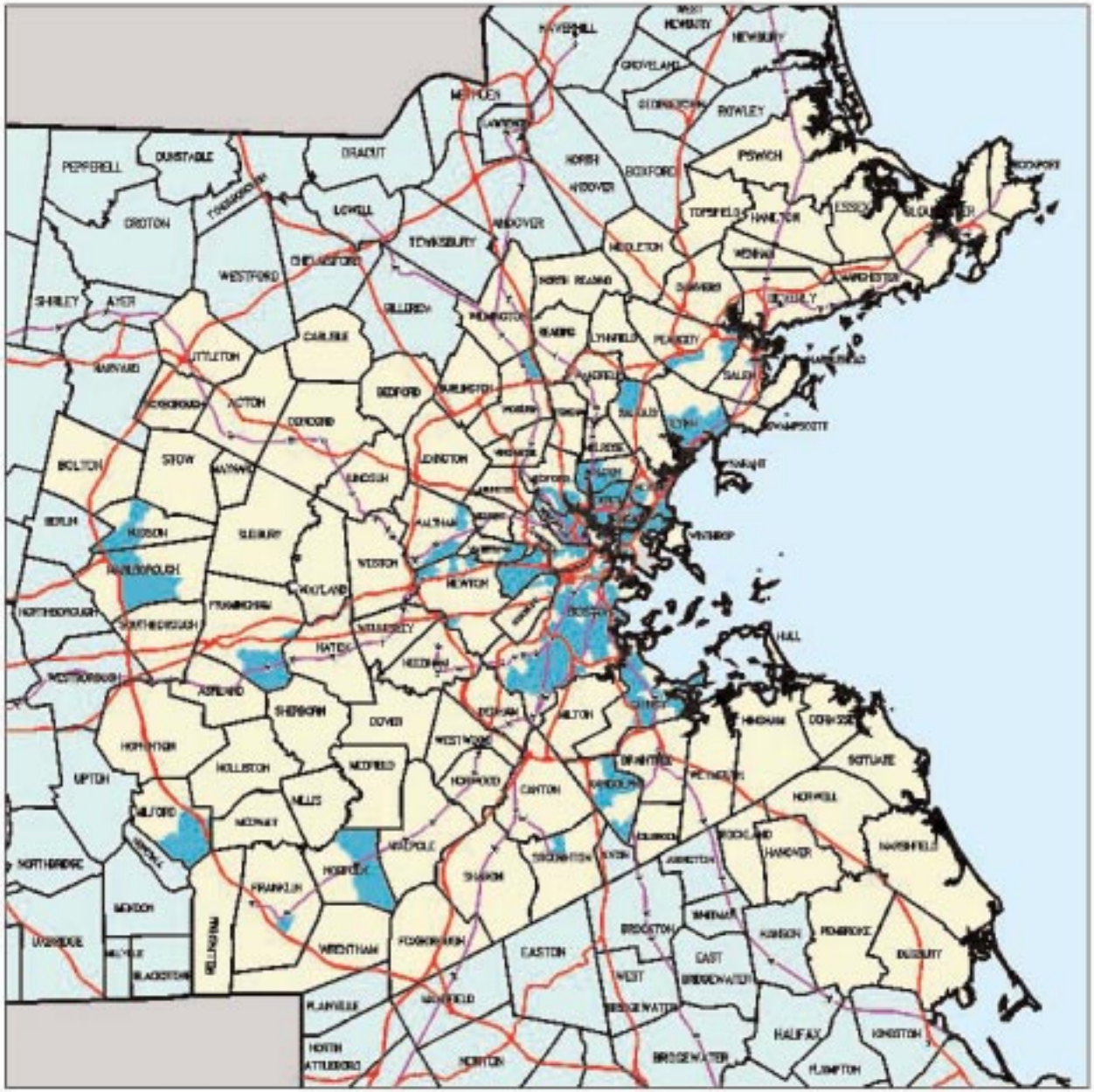
Figure 6–3

Environmental Justice Analysis

Traffic Analysis Zones with Significant Not-Fluent-in-English Populations in 2000:

Boston Region MPO



This map designates traffic analysis zones in the 101 municipalities of the Boston Region Metropolitan Planning Organization according to the level of linguistic isolation present. Linguistic isolation is defined as the ability to speak English either "not well" or "not at all."

The population age 5 and over of the MPO region in 2000 was 3,079,896, of which 118,076, or 4.1%, spoke English either not well or not at all.

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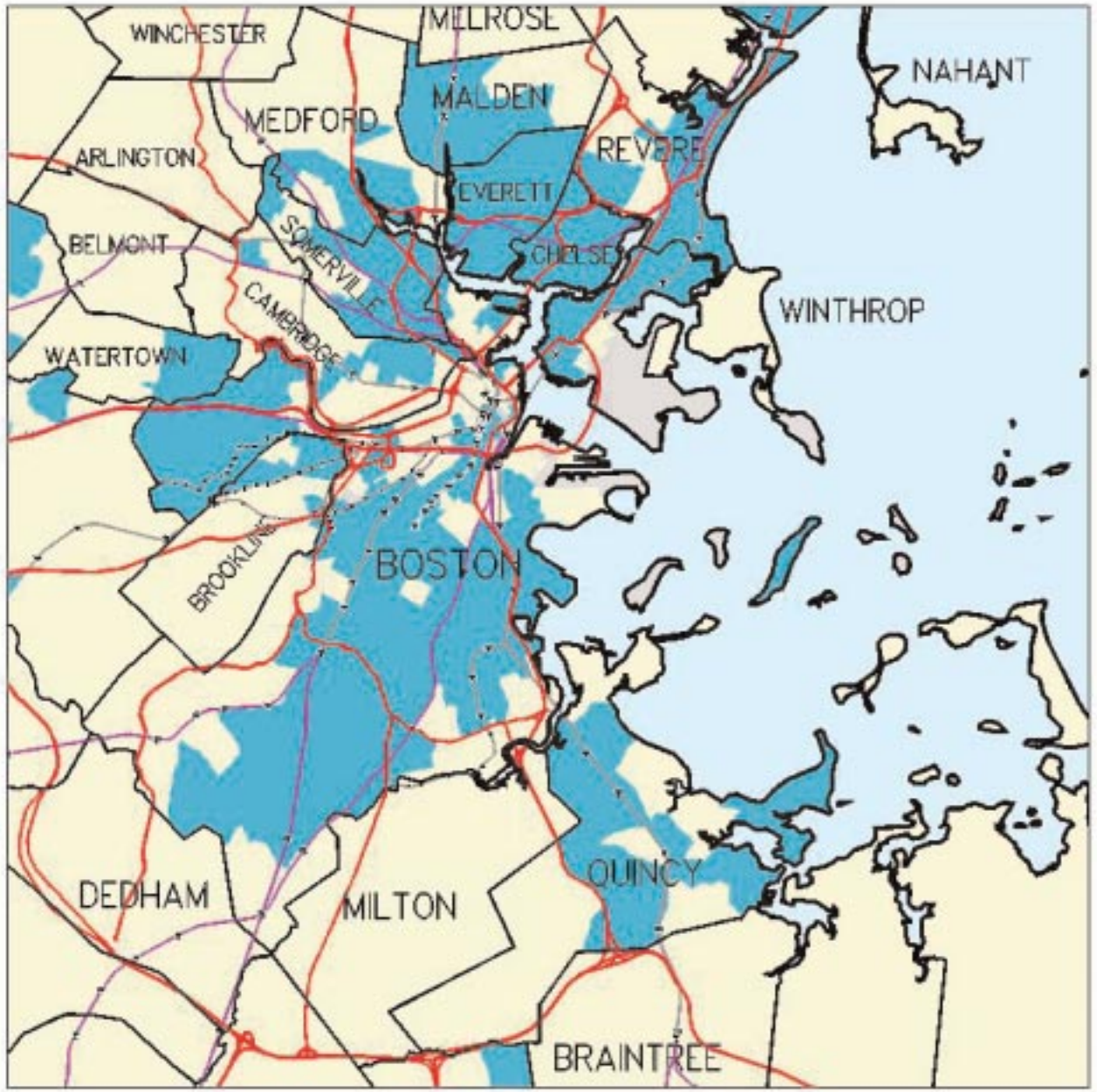
Figure 6–4

Environmental Justice Analysis

Traffic Analysis Zones with Significant Not-Fluent-in-English Populations in 2000:

Boston Region MPO's Urban Core



Legend

- More than 4.1% not fluent in English
- Major road
- Rapid transit
- Silver Line, Phase I
- Commuter rail

This map designates traffic analysis zones in the 101 municipalities of the Boston Region Metropolitan Planning Organization according to the level of linguistic isolation present. Linguistic isolation is defined as the ability to speak English either "not well" or "not at all."

The population age 5 and over of the MPO region in 2000 was 1,679,896, of which 116,076, or 6.1%, spoke English either not well or not at all.

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Figure 6–5

Environmental Justice Analysis

Traffic Analysis Zones with Significant Transit-Dependent Populations in 2000:

Boston Region MPO

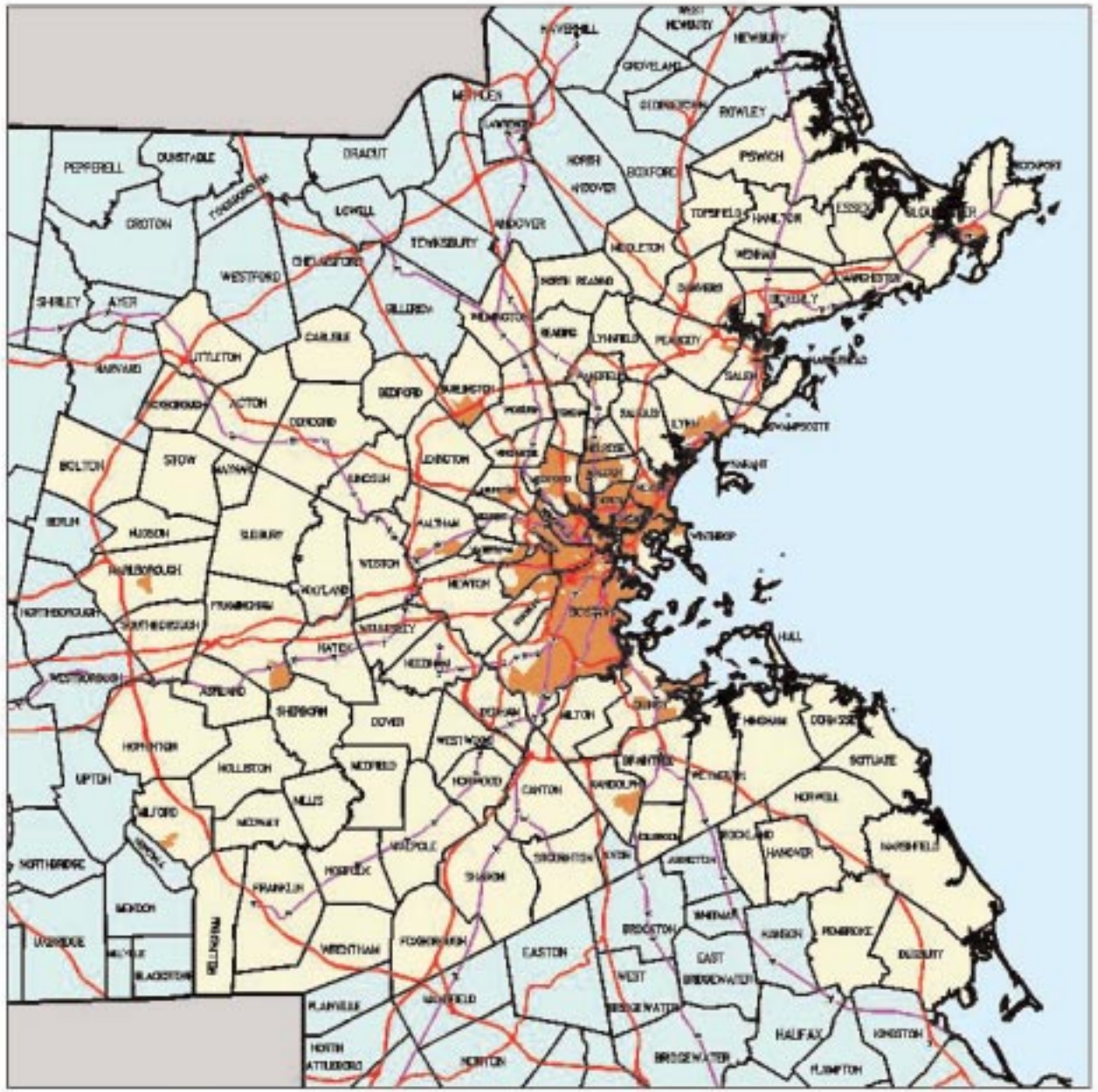
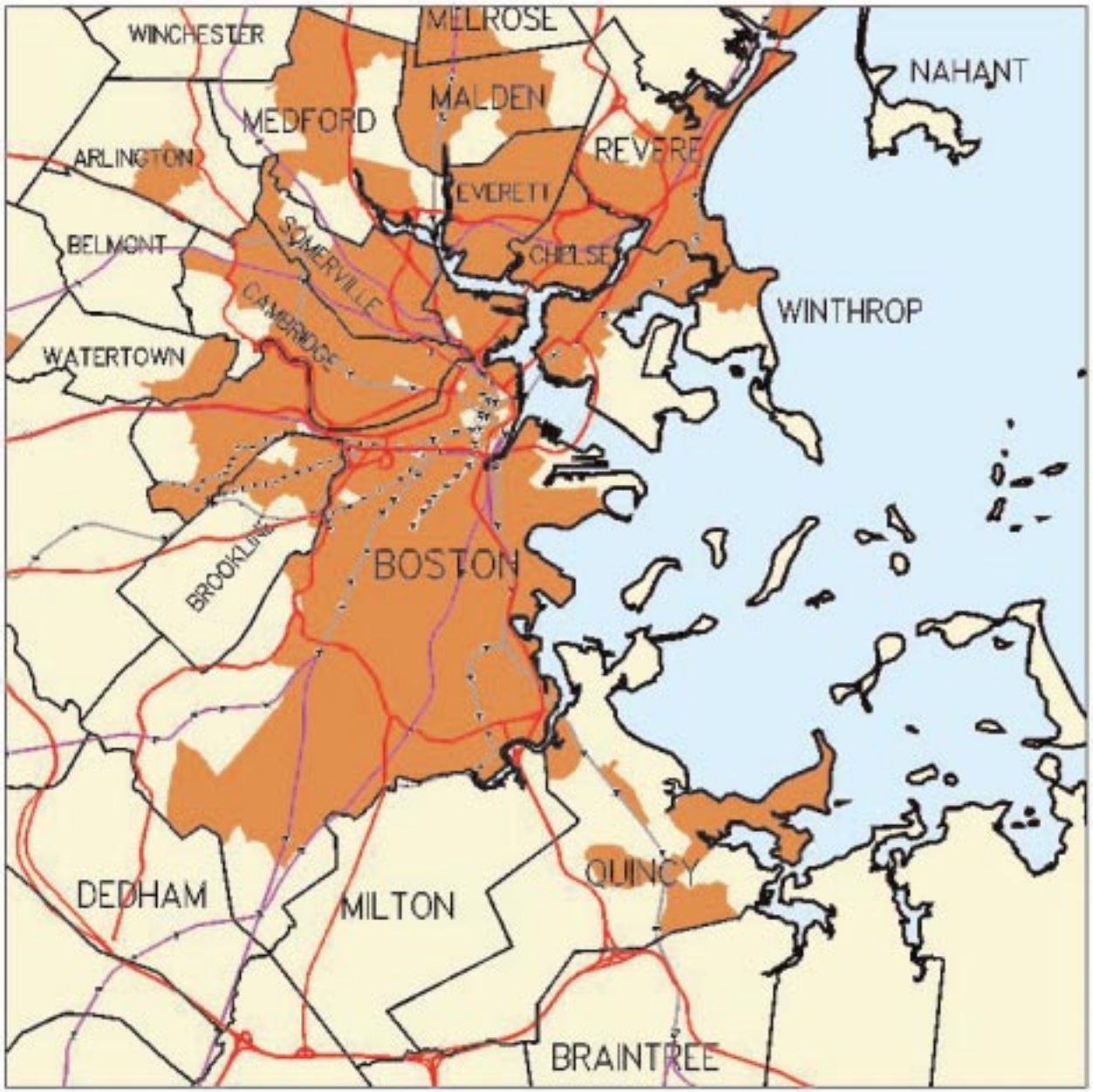


Figure 6–6

Environmental Justice Analysis

Traffic Analysis Zones with Significant Transit-Dependent Populations in 2000:

Boston Region MPO's Urban Core



Legend

- More than 15.4% zero-vehicle households
- Major road
- Rapid transit
- Silver Line, Phase I
- Commuter rail

This map designates traffic analysis zones in the 101 municipalities of the Boston Metropolitan Planning Organization region by their degree of transit dependence. Transit dependence is assessed for households with no vehicle available. United States Census data for 2000 indicate that, of 1,287,703 occupied housing units (households) in the Boston MPO region, 198,501, or 15.4%, had no vehicle available for personal use.

Scale 1:150000

1 inch = 2.37 miles

CTPS

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- Chinatown
- Dorchester
- East Boston
- Framingham
- Jamaica Plain/Mission Hill
- Lynn
- Mattapan
- Quincy
- Revere
- Roxbury
- Salem
- Somerville
- South Boston
- South End

Figures 6-7 and 6-8 show the geographic distribution of target neighborhoods within the MPO region. Profiles of these were developed with input from the Environmental Justice Committee. These profiles are included in Appendix B.

CONCERNS AND NEEDS

Community members of the MPO's Environmental Justice Committee provided descriptions of the communities they represent and summaries of their transportation needs and issues of concern. A memo documenting this information is presented in a memo entitled "Environmental Justice Community Transportation Needs Analysis" which is included in Appendix B. In spite of geographic differences, there were common themes expressed. These summaries provided information on what the populations of concern considered to be benefits and burdens associated with transportation policies and projects that were considered in the Plan. The needs that they expressed related to a wide range of issues. Analysis was conducted for those that could be assessed through the regional travel model. Further discussions of how other needs might be addressed will take place in the future.

Common concerns include:

- Mobility
- Language and cultural diversity
- Gentrification
- Construction impacts
- Poor air quality

Common needs include:

- Service improvement to existing transit
- Transportation to decentralized locations
- Reduction in traffic congestion

Based on these needs and concerns, several indicators of benefits and burdens were developed to address the motor vehicle and transit modes. A memo included in Appendix B entitled "Analysis of the MBTA Bus Network Based on Service Measures in the Environmental Justice Section of the Regional Transportation Plan" also helps to identify needs related to the existing transit service by assessing service frequency, vehicle loading, and shelter location for buses and commuter rail.

PERFORMANCE MEASURES

The systemwide analysis identified performance measures to address the quantifiable needs of the populations of concern described above.

The performance measures used as indicators of benefits and burdens in this analysis fall into three categories:

- Mobility and congestion
- Environment
- Access to needed services and jobs

Mobility and the environment were examined by comparing the target populations with their respective non-target populations using the predetermined performance measures. These analyses compare populations within the 2025 No-Build Scenario and within each of the 2025 build scenarios (the Recommended Plan and Build 2).

Figure 6–7

Environmental Justice Target Neighborhoods:

Boston Region MPO

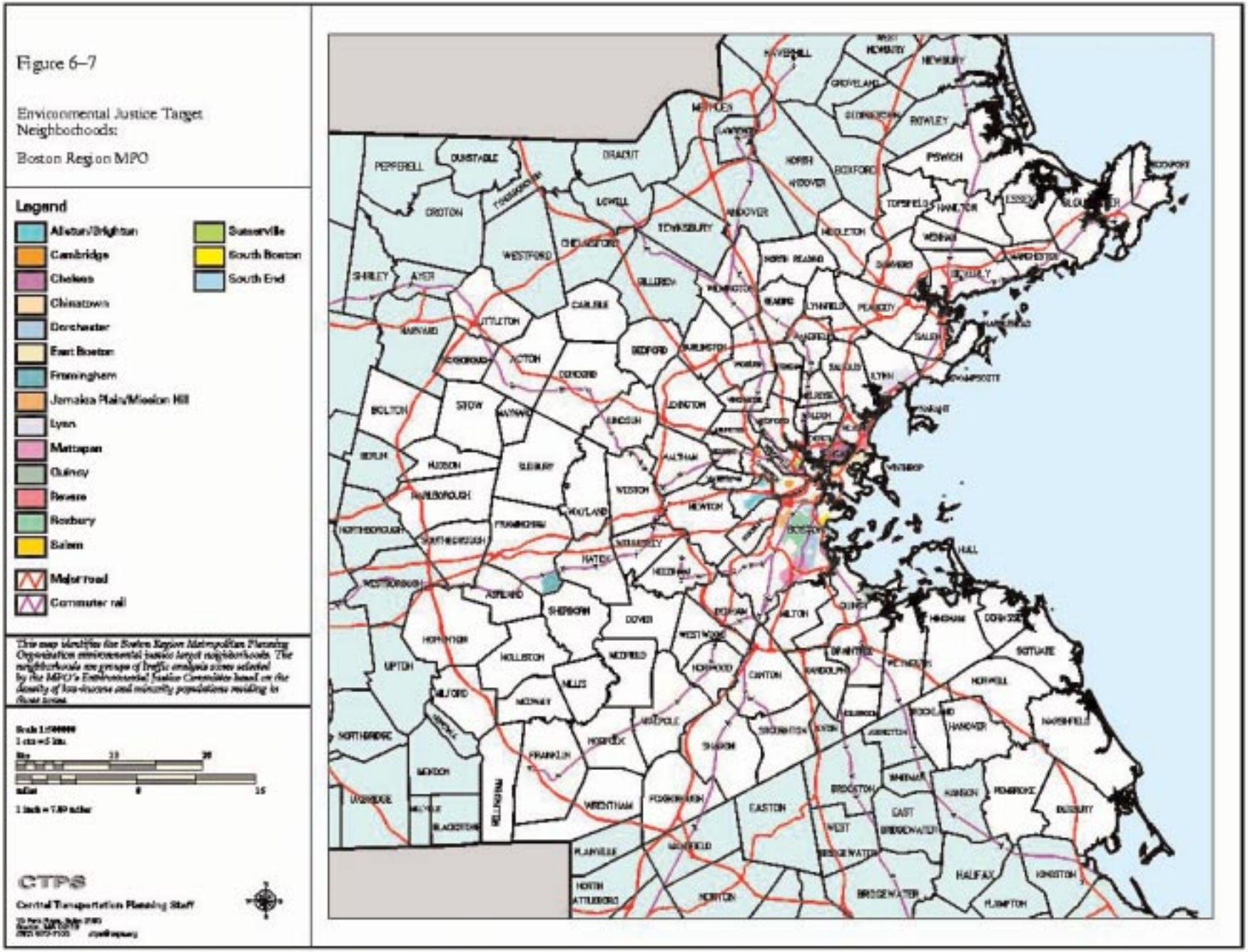
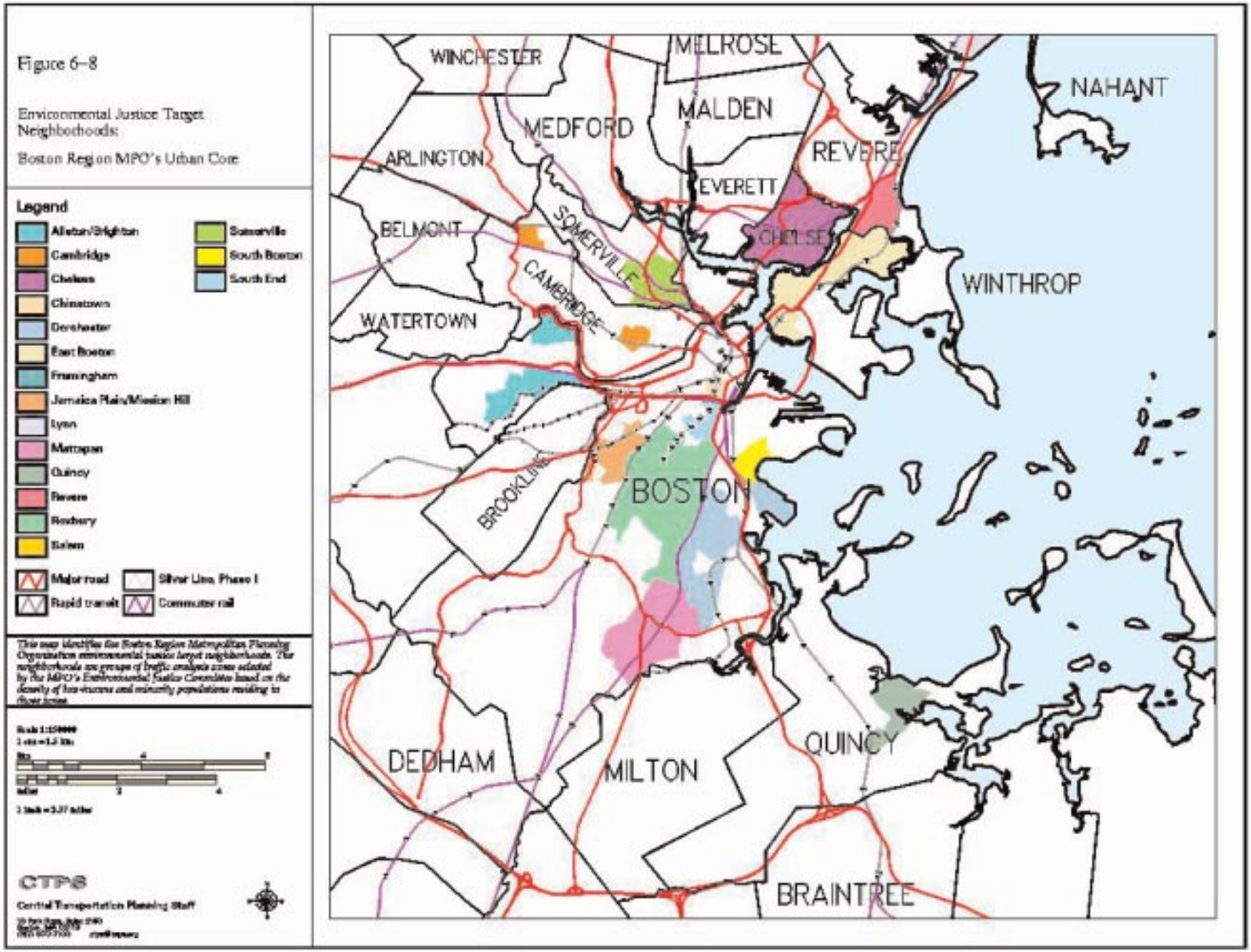


Figure 6-8

Environmental Justice Target Neighborhoods:

Boston Region MPO's Urban Core



They then examine the changes between the No-Build and the two build scenarios.

Access to needed services and jobs was analyzed in terms of travel times from target neighborhoods to employment, health care, and institutions of higher education. Differences between the No-Build and each of the build scenarios were examined.

For a more detailed description of how the analyses were performed, please refer to the memo entitled "Proposed Environmental Justice Modeling Methodology" (version 3), which is included in Appendix B.

Selected Performance Measures Used in the Analysis

Mobility and Congestion

- Average daily travel time for auto and transit, weighted by trips
- Average daily travel speeds for auto, weighted by trips
- Daily travel time savings
- AM peak period vehicle miles of travel (VMT) in congestion
- Average daily vehicle miles of travel per auto person trips generated at the origin traffic analysis zone as a measure of density of VMT and cut-through traffic

Environmental Concerns

- Density of carbon monoxide produced in the TAZ

GREEN LINE

Access to Needed Services and Jobs

- Access to two-year higher educational facilities weighed by enrollment
- Access to four-year higher educational facilities weighed by enrollment
- Access to extended care facilities weighted by number of beds
- Access to health care facilities
- Access to service employment opportunities
- Access to retail employment opportunities
- Access to manufacturing employment opportunities
- Access to transportation, communication, & public utility employment opportunities

Issues Not Modeled

Other concerns were nonquantifiable and will be subject to future discussions:

- Gentrification issues
- Construction impacts of specific projects on the populations of concern
- The extent to which the Plan removes language and cultural obstacles on the transit system

SUMMARY OF RECOMMENDED PLAN RESULTS

The Recommended Plan improves mobility, congestion, accessibility, and environmental concerns relative to the No-Build alternative. For all target populations, the mobility analysis showed greater improvements for the transit mode than for auto. Target populations using transit experienced more improvements than the non-targeted populations. There was little difference in the magnitude of improvements experienced by target and non-targeted populations using the auto mode. Please see memorandum on "Preliminary Environmental Justice Results for the 2004-2025 Regional Trans-

portation Plan: Comparison of the No-Build with Build 1 and Build 2 Scenarios" in Appendix B.

Recommended Plan Mobility Analysis: Key Points

1. Average daily auto and transit travel times weighted by trips (see Figures 6-9 and 6-10):

- All target populations and non-target populations experienced decreases in average daily auto travel time relative to the No-Build scenario ranging from –1% to –3%.
- There was no apparent disparity in percent reductions in auto travel time between the different populations within this scenario.
- All populations experienced decreases in average daily transit travel time relative to the No-Build Scenario ranging from –1% to –3%.
- The target populations, namely minority and low-income populations, experienced a higher percent reduction in transit travel time than the non-target populations within this scenario.

2. Average daily auto travel speeds weighted by trips (see Figure 6-11):

- All target populations and non-target populations experienced increases in speeds ranging from 2% to 3%.
- The target populations experienced a greater percent increase than the non-target populations.

3. AM peak-period congested vehicle-miles of travel, congestion being defined as a volume-to-capacity ratio of greater than 0.75 on roadways (see Figure 6-12):

- All target populations and non-target populations experienced decreases in congested vehicle-miles of travel ranging from –4% to –9%.
- The target populations experienced a greater percent reduction than the non-target populations.

THE SILVER LINE, OPENED JULY 2002

4. Average daily vehicle-miles of travel per auto trip generated by the TAZ (see Figure 6-13):

- All target populations and non-target populations experienced decreases in the ratio of vehicle miles of travel per auto person trip ranging from –4% to –9%.
- The target populations experienced a greater percent reduction than the non-target populations, with the low-income population having the largest reduction.

5. Total travel time savings for highway and transit modes (see Figure 6-14):

- All populations experienced decreases in travel time for auto and transit combined ranging from –1% to –2%.
- The non-target populations experienced a slightly greater reduction than the target populations, with populations in the suburbs having slightly greater savings then those in the inner core.

Recommended Plan Environmental Analysis: Key Points

Density of carbon monoxide produced on roadways by automobiles (estimated using Mobile 5H emission factors) aggregated by roadway class and TAZ (see Figure 6-15):

- All populations experienced decreases in carbon monoxide emissions ranging from –1% to –6%.
- The target populations experienced a greater reduction than the non-target populations, with the low-income population having the largest reduction.

Recommended Plan Accessibility Analysis (target populations only): Key Points

1. Auto access (see Figure 6-16):

- Education, health care, and employment all had improvements, which ranged from 0.5% to 2.5%.
- Among the employment opportunities, retail and service experienced the greatest improvements.
- Health care and education both experienced modest improvements.

2. Transit access (see Figure 6-17):

- Education, health care, and employment all had improvements, which ranged from 2% to 11%.
- Education and health care experienced more improvement than employment.

SUMMARY OF BUILD 2 RESULTS

A second build alternative, "Build 2," was also examined, based upon the recommendation of the Environmental Justice Committee. This scenario was essentially the same as the Recommended Plan except that it included the conversion of the Dudley/ Boylston section of the existing Silver Line to light rail in place of the Silver Line Phase III project. A partial review of Build 2 was undertaken to assess its benefits and burdens relative to the Recommended Plan. Build 2 appeared to provide benefits similar to those of the Recommended Plan in regards to mobility and the environment. Build 2's accessibility analysis results were slightly different from the Recommended Plan's, with access to employment showing fewer gains but access to education and health care showing a slight increase.

In addition to the environmental justice analysis, this scenario was tested for ridership results with the regional transportation model. The model indicated that the Silver Line with Phase III implemented would attract significantly more riders away from both the automobile and other congested transit services than would the light rail alternative. A more detailed discussion of the differences between the Recommended Plan and Build 2 is included in Appendix B in a memo titled, "Ridership Comparison of Silver Line Phase III and Washington Street Light Rail Transit."

CONCLUSION

The environmental justice analysis shows the Recommended Plan improving mobility, decreasing congestion, reducing carbon monoxide, and providing some access improvements to services and jobs for all populations. Using the results of the mobility analysis, a comparison of the target populations with the non-target populations shows the target populations using transit receiving greater direct benefits than the non-target populations. Most of the benefits to the target population relating to the auto mode are indirect, such as reductions in congestion and emissions of CO occurring where the target populations live. The accessibility analysis showed some improvements for the target neighborhoods because of improved access to schools and health care via the transit mode and improved access to jobs via the auto mode.

FIGURE 6-9

Reduction in Average Daily Travel Time for Autos, 2025, with Implementation of Recommended Plan, Compared to No-Build Scenario, by Classification of TAZ

(Note: Travel times weighted by number of trips)

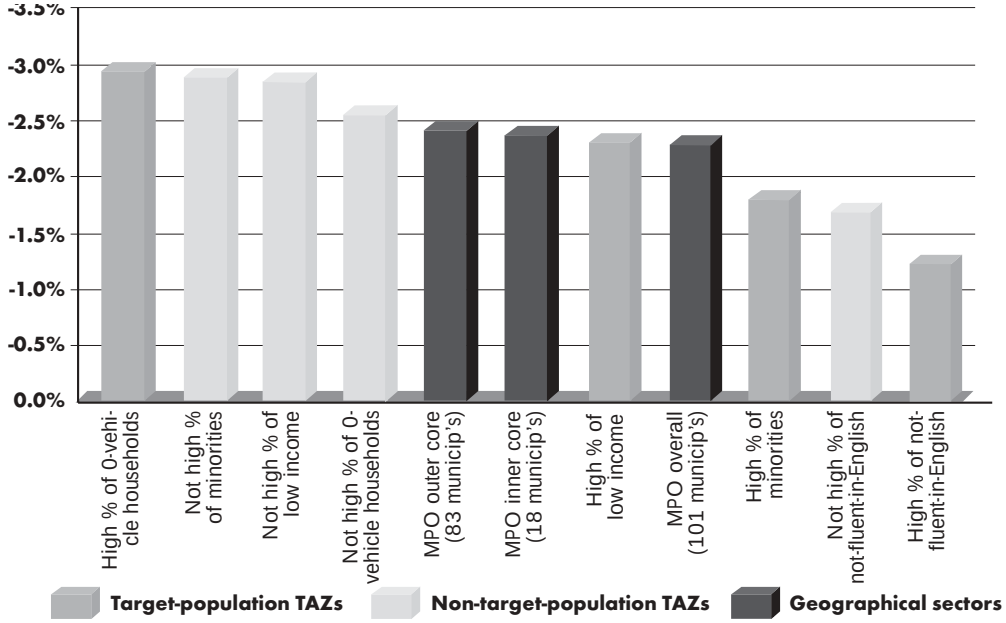


FIGURE 6-10

Reduction in Average Daily Travel Time for Transit, 2025, with Implementation of Recommended Plan, Compared to No-Build Scenario, by Classification of TAZ

(Note: Travel times weighted by number of trips)

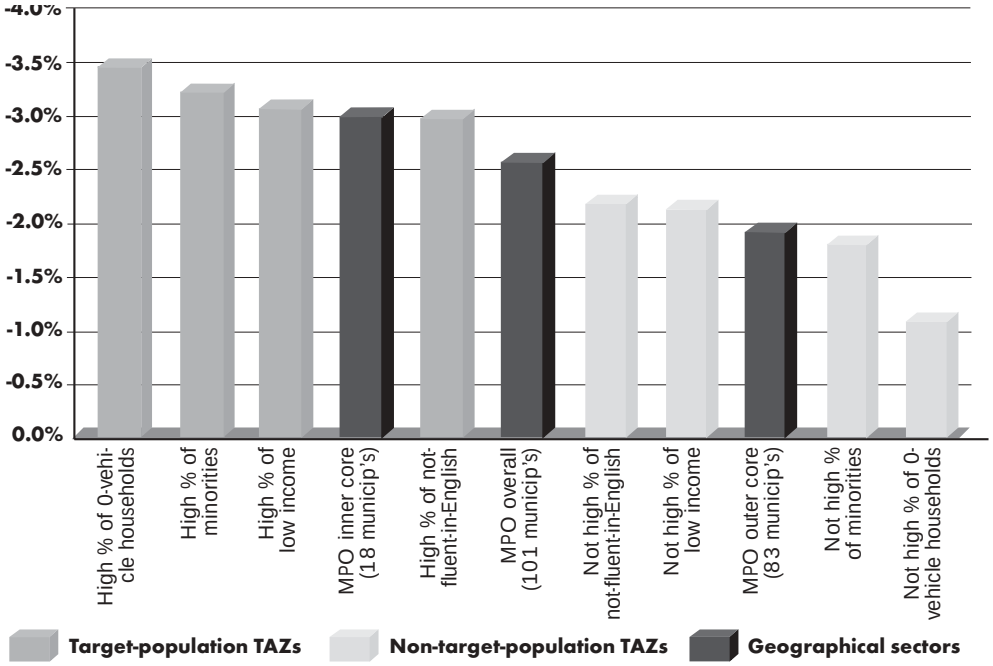


FIGURE 6-11

Change in Average Daily Travel Speeds for Autos, 2025, with Implementation of Recommended Plan, Compared to No-Build Scenario, by Classification of TAZ

(Note: Travel times weighted by number of trips)

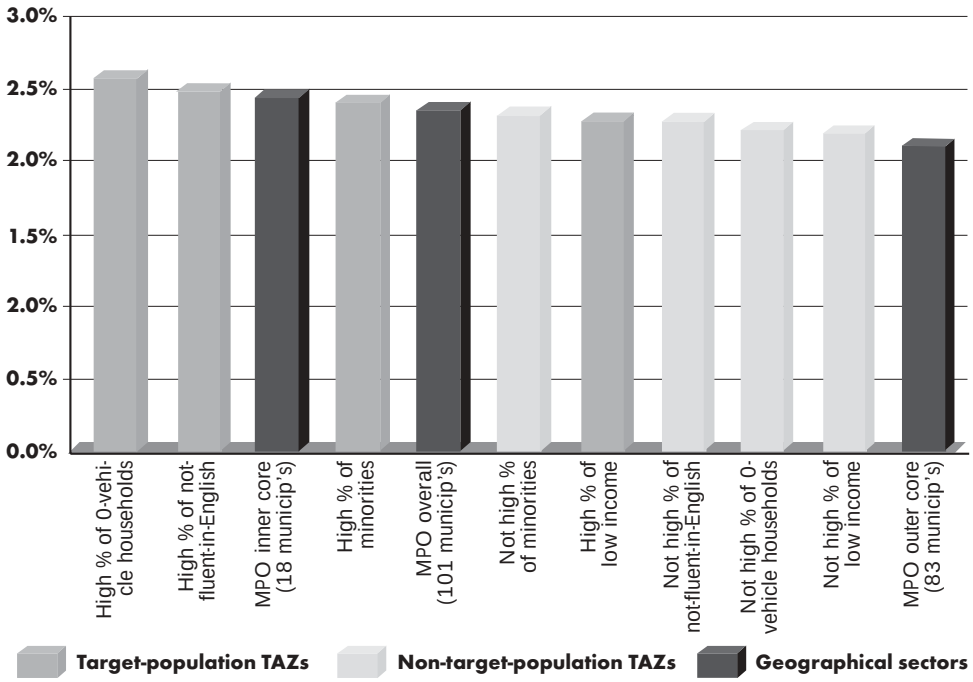


FIGURE 6-12

Reduction in AM Peak Period Congested Vehicle-Miles of Travel, 2025, with Implementation of Recommended Plan, Compared to No-Build Scenario, by Classification of TAZ

(Notes: AM peak period is defined as 6:30 AM to 9:30 AM. Congestion is defined as roadway segments having a volume-to-capacity ratio of 0.75 or greater.)

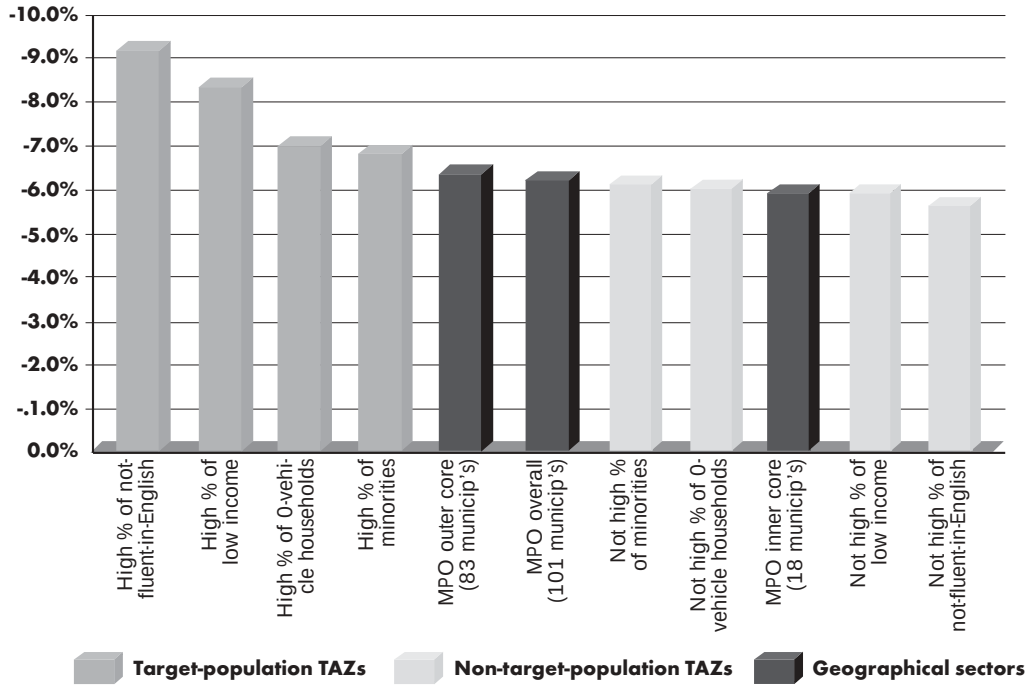


FIGURE 6-13

Reduction in Daily Arterial Vehicle-Miles of Travel per Auto Trip Generated, 2025, with Implementation of Recommended Plan, Compared to No-Build Scenario, by Classification of TAZ

(Note: Travel times weighted by number of trips)

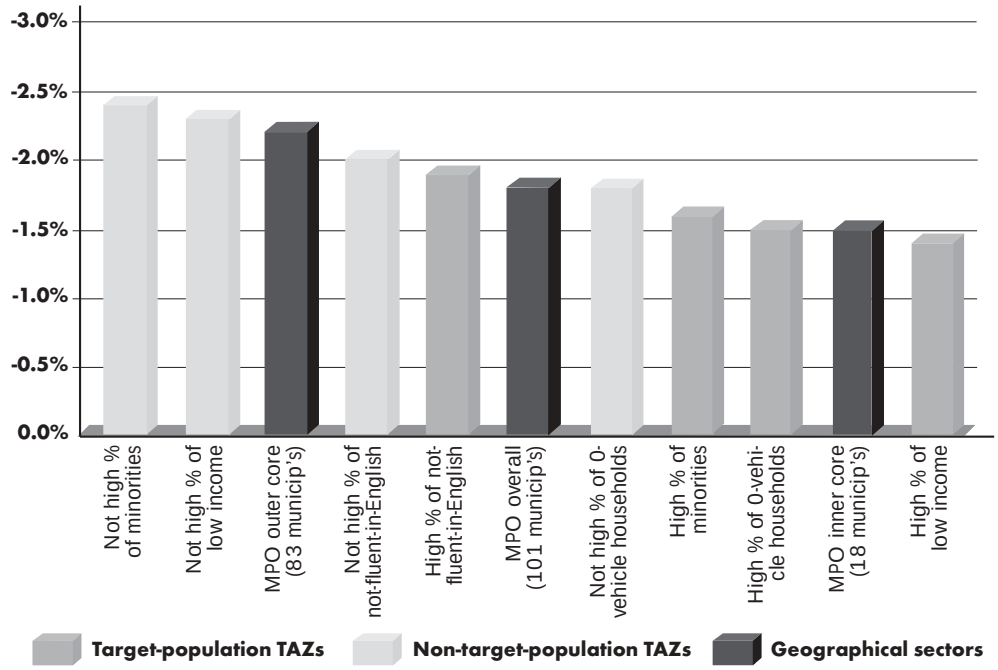


FIGURE 6-14

Change in Travel Time for Auto and Transit Combined, 2025, with Implementation of Recommended Plan, Compared to No-Build Scenario, by Classification of TAZ

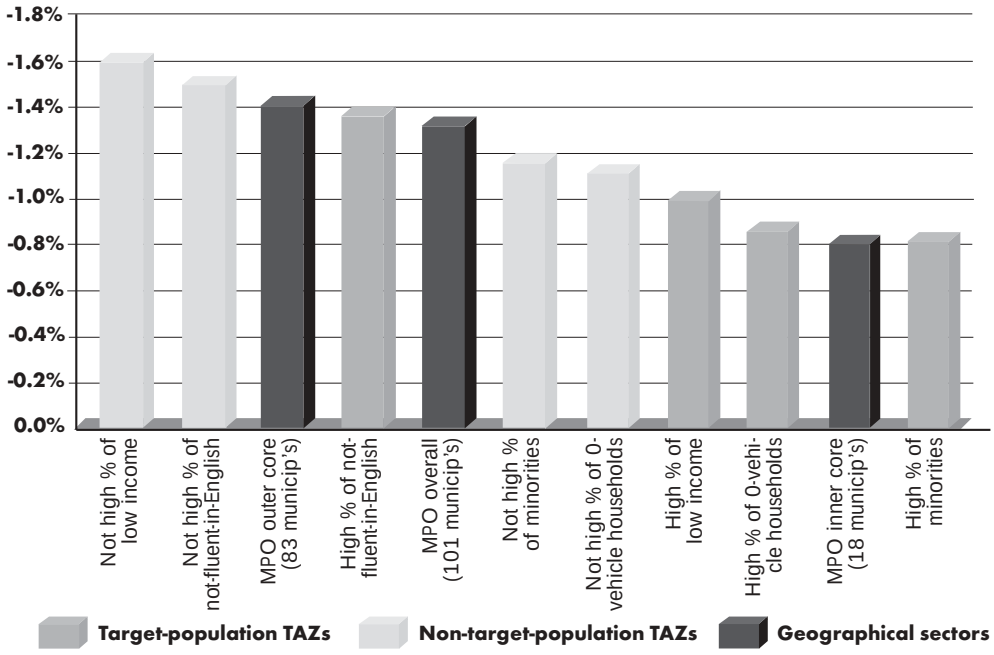


FIGURE 6-15
Change in Carbon Monoxide Produced by Autos, 2025, with Implementation of Recommended Plan, Compared to No-Build Scenario, by Classification of TAZ

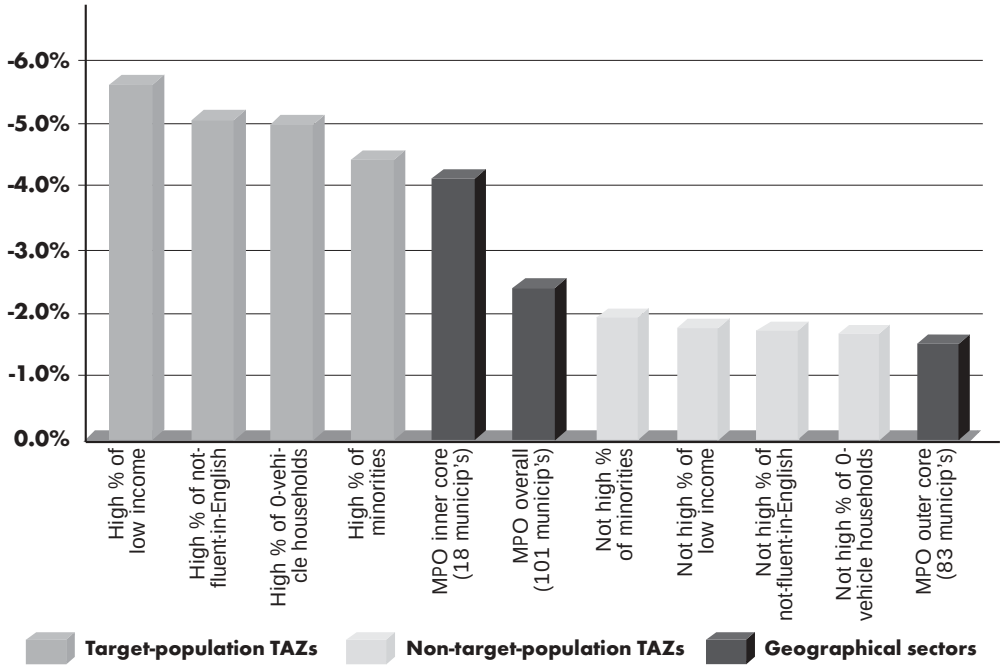


FIGURE 6-16
Change in Access to Needed Service and Employment Opportunities by Auto from the Target Neighborhoods, 2025, with Implementation of Recommended Plan, Compared to No-Build Scenario

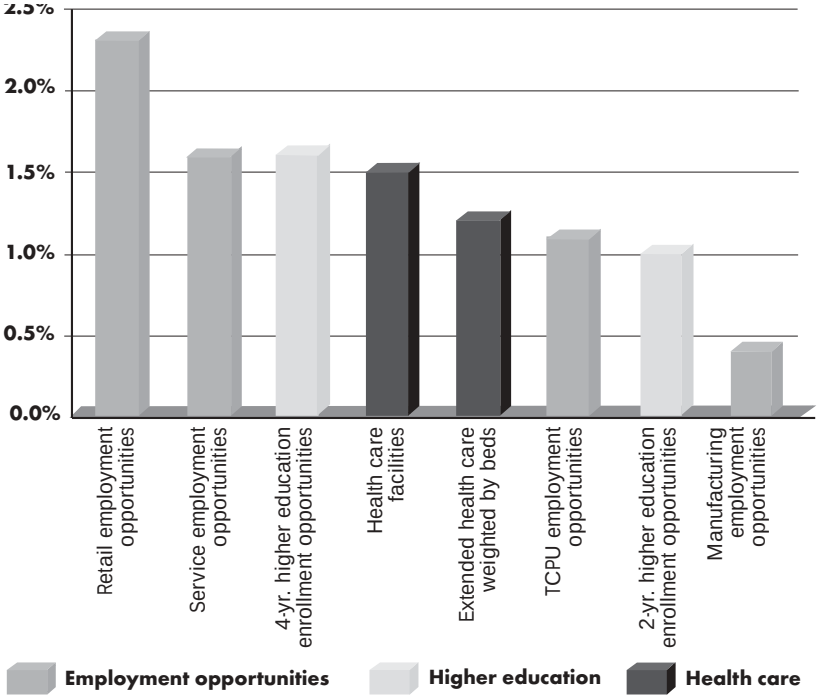
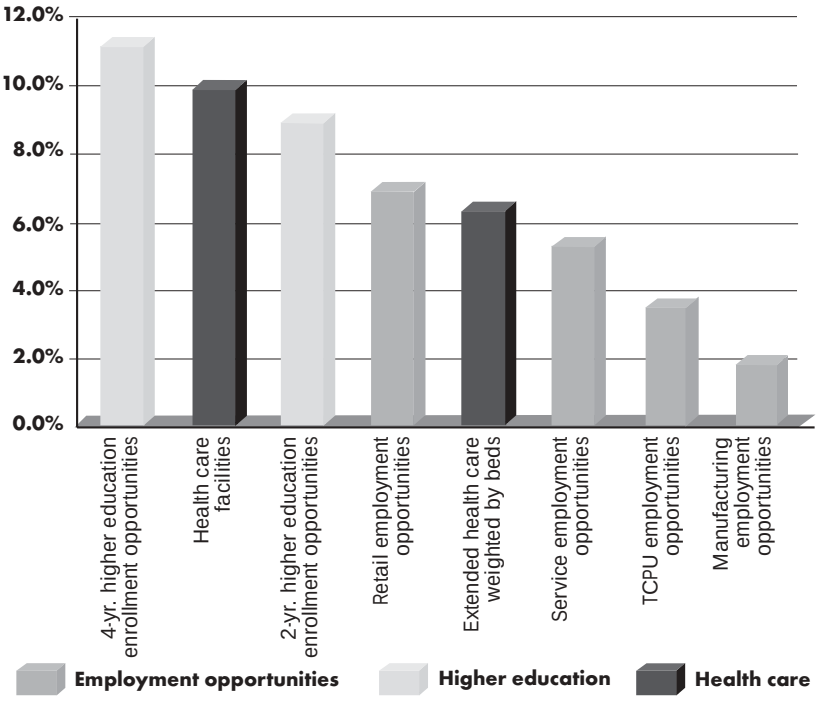


FIGURE 6-17

Change in Access to Needed Service and Employment Opportunities by Transit from the Target Neighborhoods, 2025, with Implementation of Recommended Plan, Compared to No-Build Scenario



CHAPTER 7

AIR QUALITY CONFORMITY DETERMINATION

INTRODUCTION

The 1990 Clean Air Act Amendments (CAAA) require metropolitan planning organizations within nonattainment areas to perform air quality conformity determinations prior to the approval of Transportation Plans and Transportation Improvement Programs. A nonattainment area is one that the U.S. Environmental Protection Agency (EPA) has designated as not meeting certain air quality standards. A conformity determination is a demonstration that plans, programs, and projects are consistent with the State Implementation Plan (SIP) for attaining the air quality standards. The CAAA requirement of performing a conformity determination ensures that federal approval and funding go to those transportation activities that are consistent with air quality goals. This chapter presents information and analyses for the air quality conformity determination for this Regional Transportation Plan, as required by federal regulations (40 CFR Part 93) and the Massachusetts Conformity Regulations (310 CMR 60.03). Included are the regulatory framework, conformity requirements, planning assumptions, mobile source emissions budgets, and conformity consultation procedures.

Legislative Background

Eastern Massachusetts has been classified as a "serious" ozone nonattainment area. This area includes all of Barnstable, Bristol, Dukes, Essex, Middlesex, Nantucket, Norfolk, Suffolk, and Worcester counties. With this nonattainment classification, the CAAA require the Commonwealth to reduce its emissions of volatile organic compounds (VOCs) and nitrogen oxides (NOx), the two major precursors to ozone formation, to achieve attainment of the ozone standard by 2007 and beyond.

On April 1, 1996, the communities of Boston, Cambridge, Chelsea, Everett, Malden, Medford, Quincy, Revere, and Somerville were classified as in attainment for carbon monoxide (CO). Air quality conformity analysis must still be completed in these communities, as they have a carbon monoxide maintenance plan approved as part of the SIP. The year-2010 CO motor vehicle emission budget established for the Boston CO attainment area with a maintenance plan is 228 tons of CO per winter day.

As of April 22, 2002, the community of Waltham was redesignated as in attainment for CO with an EPA-approved limited maintenance plan. In areas with approved limited maintenance plans, federal actions requiring conformity determinations under the transportation conformity rule are considered to satisfy the "budget test" (as budgets are treated as not constraining in

these areas for the length of the initial maintenance period). Any future required "project-level" conformity determinations for projects located within this community will continue to use a "hot-spot" analysis to ensure that any new transportation projects in this CO attainment area do not cause or contribute to CO nonattainment.

On September 6, 2002, the Massachusetts Department of Environmental Protection (DEP) submitted to the EPA a revision to the Massachusetts SIP that included a revised one-hour ozone attainment demonstration for eastern Massachusetts. This SIP revision included a 2007 mobile source emission budget for VOC and NOx emissions in the eastern Massachusetts Ozone Nonattainment Area. This budget was found adequate for conformity purposes by the EPA on December 6, 2002, and is used in this conformity determination.

Conformity Regulations

Designated MPOs are required to perform conformity determinations by ozone nonattainment area for their Transportation Plans and Transportation Improvement Programs (TIPs). Section 176 of the CAAA defines conformity to a State Implementation Plan to mean conformity to the plan's purpose of eliminating or reducing the severity and number of violations of the National Ambient Air Quality Standards (NAAQS) and achieving expeditious attainment of the standards. The Boston Region MPO must certify with regard to the activities outlined in this Regional Transportation Plan that:

- none will cause or contribute to any new violation of any standard in any area;
- none will increase the frequency or severity of any existing violation of any standard in any area; and
- none will delay the timely attainment of any standard or any required interim emission reductions or other milestones in any area.

MASSPIKE EXTENSION

The EPA issued final conformity regulations in the November 24, 1993, *Federal Register* and DEP issued new conformity regulations effective December 30, 1994. They set forth requirements for determining conformity of Transportation Plans, TIPs, and individual projects. The federal conformity regulations were amended on August 15, 1997. The components of the required conformity analysis are listed below and explained in detail subsequently.

Conformity Criteria

- Horizon years
- Latest planning assumptions
- Latest emission model used
- Timely implementation of transportation control measures (TCMs)
- Conformity in accordance with the consultation procedures and SIP revisions
- Public participation procedures
- Financially constrained document

Procedures for Determining Regional Transportation Emissions

The Conformity Test

- Consistent with emission budgets set forth in SIP
- Contributes to reductions in CO nonattainment areas

This conformity determination will show the consistency of this Plan with the 2007 mobile source emission budget for VOC and NOx in the Eastern Massachusetts Ozone Nonattainment Area and with the CO emission budget for the Boston, Cambridge, Chelsea, Everett, Malden, Medford,

Quincy, Revere, and Somerville maintenance area.

CONFORMITY DETERMINATION CRITERIA

This conformity determination has been prepared in accordance with 40 CFR Part 93, Transportation Conformity Rule Amendments: Flexibility and Streamlining: Final Rule. It shows that this Regional Transportation Plan has been prepared following all the guidelines and requirements of the rule.

A MEETING ON THE REGIONAL TRANSPORTATION PLAN

Horizon Year Requirements

The horizon years for regional model analysis have been established following 40 CFR 93.106(a) of the Federal Conformity Regulations. The years for which emissions are calculated are shown below.

- 1990 – Milestone Year: This year was established as the base year in the SIP for calculation of emission reductions and is not represented in the modeling.
- 2000 – Milestone Year: This year is currently being used as the new base year for calculation of emission reductions of VOCs and NOx.
- 2005 – Analysis Year for CO in the Boston nonattainment area
- 2007 – Milestone Year –Attainment year
- 2010 – Attainment Year for CO in the Boston nonattainment area
- 2015 – Analysis Year
- 2025 – Horizon Year: Last forecast year of Regional Transportation Plan

Latest Planning Assumptions

Section 93.110 of the Federal Conformity Regulations outlines the requirements for the most recent planning assumptions that must be in place at the time of the conformity determination. Assumptions must be derived from the estimates of current and future population, households, employment, travel, and congestion most recently developed by the MPO. Analysis for this Regional Transportation Plan is based on U.S. census data and information obtained from the Metropolitan Area Planning Council, MassHighway, and other sources. The following is a list of the sources of data used for model calibration in this analysis:

- **Population, households, and household size:** Summary File 1 Data for Massachusetts from the 2000 U.S. Census of Population and Housing.
- **Employment:** Town-level total employment from Massachusetts Department of Employment and Training, "Employment and Wages in Massachusetts' Cities and Towns 1991–2000," September 2001. Estimates of employment below town level from factors based upon the Regional Planning Study Site-Level Employment Database.
- **Population forecasts:** Metropolitan Area Planning Council, Population Forecasts, March 2003.
- **Household forecasts:** Metropolitan Area Planning Council population forecasts, March 2003.
- **Employment forecasts:** Metropolitan Area Planning Council population forecasts, March 2003.
- **Vehicle ownership:** Summary File 3 data for Massachusetts from the 2000 U.S. Census of Population and Housing.

- **Traffic volumes:** Massachusetts Highway Department, "2001 Traffic Volumes for the Commonwealth of Massachusetts" (contains data from 1992–2001), June 2002. Additional traffic counts taken by MassHighway and the Central Transportation Planning Staff.
- **Project-level data:** Obtained from the responsible implementing agency.

Transit Operating Policy Assumptions

The transit service assumptions used in ridership modeling of the Plan were based on 1993/1994/1995 MBTA service. The model calibration was performed using the following:

- "Ridership and Service Statistics," Eighth Edition, MBTA, 2002.
- The Central Artery/Third Harbor Tunnel Regional Transit Mitigation Program, prepared by Vanasse Hangen Brustlin for the MBTA, September 1991.

The operating policies and assumed transit ridership have not changed since the conformity determination prepared for the 2000–2025 Regional Transportation Plan Update.

Emission Inventory Assumptions

For this Regional Transportation Plan, conformity is determined in relation to the Massachusetts State Implementation Plan (SIP) mobile source emission budgets submitted in September 2002 (approved in December 2002) for VOC and NOx. The VOC mobile source emission budget for 2007 for the Eastern Massachusetts Ozone Nonattainment Area has been set at 86.7 tons per summer day, and the 2007 mobile source budget for NOx is 226.363 tons per summer day.

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The Boston Region MPO VOC and NOx emissions are included with those in the following MPO regions to show conformity with the SIP in the Eastern Massachusetts Ozone Nonattainment Area:

- Cape Cod MPO
- Central Massachusetts MPO
- Merrimack Valley MPO
- Montachusett Region MPO
- Northern Middlesex MPO
- Old Colony MPO
- Southeastern Region MPO
- Martha's Vineyard Commission*
- Nantucket Planning and Economic Development Commission*

CO emission projections have been set for the nine cities in the Boston area classified to attainment 6 for CO. An emission attainment inventory for CO of 501.53 tons per winter day was established for all sources of CO emissions (mobile, industrial, and all other sources of CO) for the redesignation year 1993. Of that 501.53 tons, 305.43 tons per winter day was allocated for mobile sources. In addition to the attainment year inventory, the EPA required that emission projections for every five years through 2010 be developed for all sources to ensure that the combination of all CO emissions will not exceed the 501.53 tons per winter day total in the future. The mobile source emission projections have been set as shown below. Emissions from the nine towns in the Boston area can not exceed the amount in the last year of the maintenance plan (2010).

- 217.53 tons per winter day for 2005
- 228.33 tons per winter day for 2010

* These regions are considered to be MPOs for planning purposes.

MassHighway's Bureau of Transportation Planning and Development, on behalf of the Executive Office of Transportation and Construction (EOTC), estimated the results for all the MPOs in the Eastern Massachusetts Ozone Nonattainment Area using a statewide travel demand model (the Boston MPO model results were substituted as the latest planning assumptions for the conformity analysis). The air quality analysis has been finalized for all of the MPOs, and EOTC has made the final conformity determination for this ozone nonattainment area.

NEEDHAM COMMUTER RAIL PARK-AND-RIDE LOT

Latest Emission Model

Emission factors used for calculating emission changes were determined using MOBILE 6.2, the model used by DEP in determining the mobile source budget. Emission factors for motor vehicles are specific to each model year, pollutant type, temperature, and travel speed. MOBILE 6.2 requires a wide range of input parameters, including inspection and maintenance program information and other data such as anti-tampering rates, hot/cold start mix, emission failure rates, vehicle fleet mix, and fleet age distribution.

The input variables used in this conformity determination were received from DEP. The inputs used for the 2000 Base Case network were the same as those used in determining the latest Emissions Inventory for the Commonwealth of Massachusetts. The inputs used for the years 2007 through 2025 were also received from DEP and include information on programs that were submitted to the EPA in 1993, 1994, 1997, 1998, and 1999 as the control strategy for the Commonwealth to obtain ambient air quality standards for 1999 and beyond.

Timely Implementation of Transportation Control Measures

Transportation control measures (TCMs) have been required in the SIP in revisions submitted to the EPA in 1979 and 1982 and those submitted as part of the Central Artery/Tunnel project. Those TCMs included in the 1979 and 1982 submissions have been accomplished through construction or through implementation of ongoing programs. The only exceptions are the bus immersion-heater program, the Newton Rider bus service, the private bus insurance discount concept, and the pedestrian malls in Lynn, Cambridge, and Needham. These TCMs have been substituted with other services. A list of the TCMs is provided in Appendix I. These projects have all been included in past Boston Region MPO Transportation Plans and TIPs.

TCMs that were submitted as a SIP commitment as part of the Central Artery/Tunnel mitigation are also included in Appendix I. The status of these projects has been updated using the Administrative Consent Order (ACO) signed by EOTC and the Executive Office of Environmental Affairs (EOEA) on September 1, 2000, and the Project Update and Schedule submitted by the MBTA to DEP in August 2003. All of the projects are in this Transportation Plan as recommended projects.

They include:

- Southeast Expressway High-Occupancy-Vehicle (HOV) Lane
- HOV Lane on I-93 Mystic Avenue
- 20,000 New Park-and-Ride Spaces
- Ipswich Commuter Rail Extension to Newburyport
- Old Colony Commuter Rail Extension

- Framingham Commuter Rail Extension to Worcester
- Green Line Extension to Medford Hillside
- Red Line/Blue Line Connector
- South Boston Piers Transitway

The ACO reconciles and adjusts dates of completion for all projects required as mitigation for the Central Artery/Tunnel that have not been completed to date. This conformity determination includes all projects that are part of the ACO. The two transit TCM SIP commitment projects in the ACO that have not been completed on schedule are the Greenbush Line of the Old Colony Commuter Rail Service and the Arborway Restoration project. Substitute projects have been submitted to DEP for these projects and are included in this Regional Transportation Plan.

Consultation Procedures

The final conformity regulations require that the MPO must make a conformity determination according to consultation procedures set out in the federal and state regulations and must also follow public involvement procedures established by the MPO under federal metropolitan transportation planning regulations.

Both the state and federal regulations require that the Boston Region MPO, EOTC/MassHighway, DEP, EPA – Region 1, and FHWA – Region 1 consult on the following issues:

- Selection of regional emissions analysis models, including model development and assessing project design factors for modeling
- Selection of inputs to the most recent EPA-approved emissions factor model
- Selection of CO hotspot modeling procedures, as necessary
- Identification of regionally significant projects to be included in the regional emissions analysis
- Identification of projects which have changed in design and scope
- Identification of exempt projects
- Identification of exempt projects that should be treated as non-exempt because of adverse air quality impacts
- Identification of the latest planning assumptions and determination of consistency with SIP assumptions

These issues have all been addressed through consultation among the agencies listed above.

Public Participation Procedures

Title 23 CFR Sections 450.324 and 40 CFR 90.105(e) require that the development of the Plan, TIP, and related certification documents provide an adequate opportunity for public review and comment.

Section 450.316(b) establishes the outline for MPO public participation programs. The Boston MPO's public participation program was formally adopted in July 1994. The development and adoption of this program conforms to the requirements of the section. It guarantees public access to this Regional Transportation Plan and all supporting documentation, provides for public notification of the availability of the Plan and the public's right to review the document and comment thereon, and provides a thirty-day public review and comment period prior to the adoption of the Plan and related certification documents by the MPO.

On July 27, 2003, a public notice was placed in the *Boston Globe* informing the public of its right to comment on the draft document. On September 11, 2003, the Boston Region MPO voted to approve this Regional Transportation Plan and its air quality conformity determination. This

COMPRESSED-NATURAL-GAS (CNG) BUS

allowed ample opportunity for public comment and MPO review of the draft document. These procedures comply with the associated federal requirements.

Financial Consistency

Title 23 CFR Section 450.324 and 40 CFR 93.108 require this Regional Transportation Plan to "be financially constrained by year and include a financial plan that demonstrates which projects can be implemented using current revenue sources and which projects are to be implemented using proposed revenue sources."

This Regional Transportation Plan and its latest conformity determination are financially constrained to projections of federal and state resources reasonably expected to be available during the appropriate time frame. Projections of federal resources are based upon the estimated apportionment of the federal authorizations contained in SAFETEA, the six-year transportation reauthorization bill recently filed by the administration, as allocated to the region by the state or as allocated among the various MPOs according to federal formulas or MPO agreement. Projections of state resources are based upon the allocations contained in the current Transportation Bond Bill and historic trends. Therefore, this Regional Transportation Plan complies with federal requirements relating to financial planning.

PROCEDURES FOR DETERMINING REGIONAL TRANSPORTATION EMISSIONS

The federal conformity regulations set forth specific requirements for determining transportation emissions. These requirements and the procedures used for this Plan are summarized below.

Demographics, Employment, and Transportation Demand

Specific sources of population, households, employment, and traffic information used in this Plan have been listed above. Chapter 5 outlines specific project recommendations that are set forth for the Boston region through 2025.

Only regionally significant projects are required to be included in the travel demand modeling efforts. The final federal conformity regulations define regionally significant as follows:

> A transportation project (other than an exempt project) that is on a facility which serves regional transportation needs (such as access to and from the area outside of the region, major activity centers in the region, major planned developments such as new retail malls, sport complexes, etc., or transportation terminals as well as most terminals themselves) and would be included in the modeling of a metropolitan area's transportation network, including at a minimum all principal arterial highways and all fixed guideway transit facilities that offer an alternative to regional highway travel.

A listing of projects exempt from any air quality analysis is included in Appendix I. In addition, specific projects have been exempt from regional modeling emissions analysis. The categories of projects include:

- Intersection channelization projects
- Intersection signalization projects at individual intersections
- Interchange reconfiguration projects
- Changes in vertical and horizontal alignment
- Truck size and weight inspection stations
- Bus terminals and transfer points

Previous conformity amendments now allow traffic signal synchronization projects to be exempt from conformity determinations prior to their funding, approval, or implementation. However, once they are implemented, they must be included in conformity determinations for future Plans and TIPs.

The Build Network for this conformity determination is composed of projects proposed in the approved Transportation Improvement Programs,

projects in this Regional Transportation Plan, and projects in the MBTA capital budget. A listing of the projects that meet these criteria and are included in the 2004–2025 Regional Transportation Plan Build networks is provided in Table 7-1.

In addition to emissions calculated from the network model, a separate analysis was performed off-model to determine emissions from commuter rail, commuter boat, and the MBTA bus program.

Changes in Project Design Since the Last Conformity Determination Analysis

The Commonwealth requires that any changes in project design from the previous conformity determination for the region be identified. The last conformity determination was performed on the 2000–2025 Transportation Plan Update. Changes which have occurred since this last conformity determination are as follows:

- Conformity must be performed using the newly submitted 2007 mobile source emission budget.
- Conformity must be performed using new emission factors submitted by DEP, which reflect the latest assumptions (i.e., progress of the inspection/maintenance program, etc.).
- The mix of projects included in the Regional Transportation Plan.

Model-Specific Information

40 CFR Part 93.111 outlines requirements pertaining to the network-based transportation demand models. These requirements include modeling methods and functional relationships that are to be used in accordance with accepted professional practice and are to be reasonable for purposes of emission estimation. The Boston Region MPO has used the methods described in the conformity regulations in the analysis of this Regional Transportation Plan.

CENTRAL ARTERY NORTHBOUND

Highway Performance Monitoring System Adjustments

As stated in guidance by the EPA, all areas of serious ozone and carbon monoxide nonattainment must use the Federal Highway Administration's Highway Performance Monitoring System (HPMS) to track daily vehicle-miles of travel (VMT) prior to attainment to ensure that the state is in line with commitments made in reaching attainment of the ambient air quality standards by the required attainment dates. MassHighway provided HPMS information to DEP. DEP used this information in setting mobile source budgets for VOCs, NOx, and CO in all SIP revisions prior to 1997. DEP has since revised its VOC and NOx budgets using transportation demand model runs. However, the models must still be compared to HPMS data since HPMS is at present the accepted tracking procedure as outlined in the regulations.

The conformity regulations require that all model-based VMT be compared with the HPMS VMT to ensure that the region is in line with VMT and emission projections made by DEP. An adjustment factor has been developed which compares the 2000 HPMS VMT to the 2000 transportation model VMT. This adjustment factor is then applied to all modeled VOC and NOx emissions for years 2007 through 2025 to ensure consistency with EPA-accepted procedures.

$$\frac{\text{2000 HPMS VMT}}{\text{2000 Modeled VMT}} = \text{Adjustment factor for VOC and NOx}$$

HPMS adjustment factors, calculated on a regional basis, are applied to model output of future scenarios, and occasionally change as base-year models are updated or improved. The latest

TABLE 7-1
2004–2025 Regional Transportation Plan: Future Needs Analysis Build Networks

Projects	2007 Build	2015 Build	2025 Build
Crosby Drive (Bedford)	X	X	X
Middlesex Turnpike (Bedford & Burlington)	X	X	X
Rte. 128 Capacity Improvements (Beverly to Peabody)			X
East Boston Haul Road/Chelsea Truck Route (Boston)		X	X
Arborway Restoration (Boston)	X	X	X
100 Additional Buses to Improve Service on Existing Rtes		X	X
Red Line/Blue Line Connector (Boston)		X	X
Fairmount Line Improvements (Boston)	X	X	X
Route 1A/Boardman Street Grade Separation (Boston)		X	X
Russia Wharf Ferry Terminal (Boston)	X	X	X
Rutherford Avenue (Boston)		partial	X
Silver Line Phase 3 (50/50) (Boston)		X	X
Old Colony/Greenbush Commuter Rail (Boston to Scituate)		X	X
Double Stack Initiative (Boston to Newton)		X	X
Green Line to West Medford (Boston, Medford & Somerville)		X	X
Urban Ring Phases I & 2 (Compact Communities)			X
I-93/I-95 Interchange (Canton)		X	X
I-95 (NB)/Dedham Street Ramp (Canton)		X	X
Concord Rotary (Concord)			X
Route 2/Crosby's Corner (Concord and Lincoln)	X	X	X
Route 1/114 Corridor Improvements (Danvers & Peabody)			X
Telecom City Boulevard (Everett, Malden & Medford)	X	X	X
Revere Beach Parkway (Everett & Medford)			X
Route 126/135 Grade Separation (Framingham)			X
Rte. 9/Rte. 126 Interchange (Framingham)		X	X
Double Stack Initiative (Framingham to Worcester)		X	X
Route 53 (Hanover)			X
Route 53/228 (Hingham and Norwell)	X	X	X
Rte. 128 Capacity Improvements (Lynnfield to Reading)			X
Route 1 Improvements (Malden & Revere)			X
I-495/I-290/Route 85 Interchange (Marlborough)			X
Double Stack Initiative (Natick & Wellesley)		X	X
Needham Street/Highland Avenue (Newton & Needham)			X
Burgin Parkway (Quincy)			X
Quincy Center Concourse, Phase 2 (Quincy)		X	X
I-93/I-95 Initiative (Reading & Woburn)			X
Mahoney Circle Grade Separation (Revere)			X
Route 1/Route 16 Interchange (Revere)		X	X
Route 1A/Route 16 Connection (Revere)			X
North Shore Transit Improvements (Revere to Salem Corridor)*			
Boston Street (Salem)		X	X
Bridge Street (Salem)		X	X
Assembly Square Orange Line Station (Somerville)		X	X
I-93/Mystic Avenue Interchange (Somerville)			X
Naval Air Station Access Improvements (Weymouth)			X
Route 18 (Weymouth)	X	X	X
Route 3 South Additional Lanes (Weymouth to Duxbury)			X
I-93/Ballardvale Street Interchange (Wilmington)	partial	partial	X
I-93/Route 129 Interchange (Wilmington)		X	X
New Boston Street Bridge (Woburn)			X

Will begin construction before 2025 but will not be completed by 2025

TABLE 7-2
HPMS Adjustment Factors

Region	2000 HPMS VMT (miles)	2000 Travel Demand Model VMT (miles)	HPMS/Model Conversion Factor
Cape Cod	6,204,000	5,303,767	1.170
Central Mass.	12,920,000	16,756,961	0.771
Martha's Vineyard	219,000	173,899	1.259
Merrimack Valley	8,920,000	9,809,870	0.909
Boston	59,139,000	79,040,650	0.748
Montachusett	5,366,000	5,723,531	0.938
Nantucket	108,000	59,786	1.806
Northern Middlesex	7,261,000	7,509,222	0.967
Old Colony	6,058,000	7,079,932	0.856
Southeastern Mass.	14,007,000	15,012,861	0.933
Eastern Mass.	120,202,000	146,470,479	0.821

HPMS factors for the Eastern Massachusetts Ozone Nonattainment Area are shown in Table 7-2.

Since the CO emission budget for the Boston CO attainment area was determined using the HPMS method rather than the transportation model, a different adjustment factor is applied to the CO emissions for the nine cities and towns. This was done by comparing the 1990 CO emissions from the nine cities and towns resulting from the 1990 base year model run to the 1990 HPMS generated CO emissions submitted as part of the SIP. The HPMS data was divided by the model data to determine the CO adjustment factor to be applied to all modeled CO emissions for future years. The CO HPMS adjustment factor is 0.71.

THE CONFORMITY TEST

Consistency with Emission Budgets Set Forth in the SIP

The Boston Region MPO has conducted an air quality analysis of this Regional Transportation Plan. The purpose of the analysis is to evaluate the Plan's air quality impacts on the State Implementation Plan (SIP). The analysis evaluates the change in ozone-precursor (VOCs and NOx) emissions and carbon monoxide emissions due to implementation of the Plan. The modeling procedures and assumptions used in this air quality analysis follow the EPA's final conformity regulations issued on August 15, 1997. They are also consistent with procedures used by DEP to develop Massachusetts's "1990 Base Year Emission Inventory," "1996 Reasonable Further Progress Plan," "Post-1996 Reasonable Further Progress Plan," and "1996 Rate of Progress Report," and its "Ozone Attainment Demonstration" for the SIP. All consultation procedures were followed to ensure that a complete analysis of this Regional Transportation Plan was performed and was consistent with the SIP.

The primary test to show conformity with the SIP is to show that the air quality conformity of this Plan is consistent with the emission budgets set forth in the SIP. The Massachusetts Reasonable Further Progress Plan (RFP) was deemed complete by the EPA on June 5, 1997. The EPA determined that the 15% RFP SIP submittal contained an adequate mobile source emissions budget to conduct conformity determinations using the conformity criteria. In addition, the 2007 mobile source emission budget for eastern Massachusetts was found adequate for conformity purposes by the EPA on December 6, 2002.

On behalf of the Executive Office of Transportation and Construction, the Bureau of Transporta-

TABLE 7-3
VOC Emissions Estimates for the Eastern Massachusetts Ozone Nonattainment Area
(all emissions in tons per summer day)

Year	Boston Build Emissions	Eastern MA Build Emissions	Budget	Difference (Build – Budget)
2000	na	166.545	na	na
2007	43.119	80.516	86.700	-6.184
2015	21.926	41.403	86.700	-45.297
2025	17.370	31.647	86.700	-55.053

TABLE 7-4
NOx Emissions Estimates for the Eastern Massachusetts Ozone Nonattainment Area
(all emissions in tons per summer day)

Year	Boston Build Emissions	Eastern MA Build Emissions	Budget	Difference (Build – Budget)
2000	na	287.877	na	na
2007	103.843	207.567	226.363	-18.796
2015	38.195	81.380	226.363	-144.983
2025	17.117	38.974	226.363	-187.389

tion Planning and Development estimated the emissions for VOC and NOx for all areas and all MPOs (emissions for the Boston region were also estimated by Boston Region MPO staff and were included in the final totals). The VOC mobile source emission budget for 2007 for the Eastern Massachusetts Ozone Nonattainment Area has been set at 86.7 tons per summer day, and the 2007 mobile source budget for NOx is 226.363 tons per summer day. As shown in Tables 7-3 and 7-4, the results of the air quality analysis demonstrate that the VOC and NOx emissions from all build scenarios are less than the VOC and NOx emissions budgets for the Eastern Massachusetts Ozone Nonattainment Area.

The CO mobile source attainment inventory for 1993 for the nine cities in the Boston area recently reclassified as attainment is 305.43 tons per winter day. The projections provided for mobile sources for the Boston area are 217.53 tons per winter day for 2005 and 228.33 tons per winter day for 2010. The total tons per winter day of CO emissions for the nine cities in the Boston maintenance area are shown in Table 7-5. The CO emissions are less than the CO emission budget.

CONCLUSION

The Clean Air Act Amendments of 1990 established new requirements for transportation plans, programs, and projects. The EPA published a final rule in the November 24, 1993, *Federal Register,* which was last amended on August 15, 1997, providing procedures to be followed by the U.S. Department of Transportation in determining conformity of transportation plans, programs, and projects with the State Implementation Plan (SIP) for attaining air quality standards. Eastern Massachusetts has been designated a "serious" ozone nonattainment area. Federal conformity regulations require that the impact of transportation plans, programs, and projects on nonattainment areas be evaluated.

The Boston Region MPO has conducted an air quality analysis of the 2004–2025 Regional Transportation Plan. The purpose of the analysis is to evaluate the Plan's air quality impacts on the

TABLE 7-5

Winter Carbon Monoxide Emissions Estimates for the Nine Cities in the Boston Maintenance Area (all emissions in tons per winter day)

Year	Boston Build Emissions	Budget	Difference (Build – Budget)
2005	206.61	217.53	-10.92
2010	164.47	228.33	-63.86
2015	132.31	228.33	-96.02
2025	121.12	228.33	-107.21

SIP. The analysis evaluates the change in ozone precursor emissions (VOCs and NOx) and CO emissions due to the implementation of the Plan. The modeling procedures and assumptions used in this air quality analysis follow the EPA's and the Commonwealth's guidance and are consistent with all present and past procedures used by the Massachusetts DEP to develop and amend the SIP.

The Massachusetts EOTC has found the emission levels from all areas and all MPOs in eastern Massachusetts, including emissions from this Regional Transportation Plan, to be in conformance with the SIP according to conformity criteria. Specifically, the following conditions are met:

- The VOC emissions for the build scenarios are less than the 2007 VOC mobile source emission budget for analysis years 2007 through 2025.
- The NOx emissions for the build scenarios are less than the 2007 NOx mobile source emission budget for analysis years 2007 through 2025.
- The CO emissions for the build scenarios are less than projections for analysis years 2005 through 2025 for the nine cities in the Boston CO maintenance area.

In accordance with Section 176(c)(4) of the Clean Air Act as amended in 1990, the Boston Region MPO has completed its review and hereby certifies that its 2004–2025 Regional Transportation Plan and its latest conformity determination conditionally conform with 40 CFR Part 93 and 310 CMR 60.03 and are consistent with the air quality goals in the Massachusetts State Implementation Plan.

APPENDIX

A

CMS STRATEGY FOR IMPROVING MPO REGION ROADWAY OPERATIONS

MEMORANDUM

TO: **CMS Project Files** **June 9, 2003**

FROM: **Lourenąo Dantas**
Principal Transportation Planner

Efi Pagitsas
Manager, Traffic Analysis and Design

RE: **Regional Transportation Plan Update: CMS Strategy and Project Recommendations for MPO Roadways**

The Boston MPO's roadways need to be in excellent operational condition in order to allow for safe and efficient travel for commuters, commercial vehicle operators, and visitors. In addition to these primary benefits, positive impacts of safer and less congested roadway travel include improved air quality, enhanced economic activity, and reduced cut-through traffic on local roads.

This document describes the CMS perspective on attaining these goals, based on the experience of the CMS data collection and planning studies. The following general recommendations are made for each of the three roadway systems:

- *Freeways and Highways*
  - Address travel-lane continuity inconsistencies;
  - Continue and expand the existing HOV lane system;
  - Upgrade substandard interchanges;
  - Implement incident and traffic management strategies using ITS.
- *Arterials (Boston and Inner Suburbs)*
  - Implement operational and traffic management strategies;
  - Strictly enforce on-street parking regulations.
- *Arterials (Outer Suburbs)*
  - Improve downtown parking management and traffic circulation;
  - Improve traffic signal coordination;
  - Create left-turn bypass opportunities at unsignalized locations;
  - Upgrade intersection designs and traffic signals;
  - Improve pedestrian sidewalks and crosswalks;
  - Apply access management strategies.

- *All Facilities: Complementary Strategies*
  - Expansion and improvement to existing transit system (and alternative modes)
  - Increased travel demand management strategies

In the case of the arterial roadways, several already have specific recommendations for improvement, as documented in various CMS corridor studies. These recommendations should be included in the Plan for eventual implementation.

What follows is a description of these recommendations along with examples of facilities that are candidates for improvements.

Freeways and Highways

There are two types of congestion that affect the region's highway network, mostly during the peak periods of travel: recurring congestion and non-recurring congestion. In most cases, recurring highway congestion is caused by insufficient capacity at highway segments (i.e., too few traffic lanes, lack of lane continuity, etc.) and traffic flow turbulence at locations where vehicles merge, diverge, and weave across lanes to change direction (i.e., interchanges, access and egress points). Non-recurring congestion is due to random crashes and other traffic incidents (e.g., disabled vehicles) that impede mobility, and cause delays and frustration to all drivers. Based on this differentiation of congestion types and the experience gained through highway monitoring, the following types of highway improvement programs are seen as priority for the region's highways in order to improve mobility:

- **Recurring congestion along highway segments –** Appropriate strategies are those that correct existing inconsistencies in travel-lane continuity (where traffic volume warrants it) and those that increase the person-throughput of the highway. Examples of such projects include[1]:
  - Route 1 between Copeland Circle in Revere and Route 99 in Saugus
  - Route 1A between Curtis Street north of Logan Airport and Mahoney Circle in Revere
  - Route 128 from I-95 in Peabody to Brimbal Avenue in Beverly
  - Route 128/I-95 from I-93 interchange Reading to I-95 split in Peabody
  - Route 128/I-95 from Route 9 in Wellesley to Route 24 in Randolph
  - Route 3 from Route 18 (Exit 16) in Weymouth to Route 14 (Exit 11) in Duxbury

- **Person-throughput increasing strategies –** These include, maintaining and monitoring the existing two HOV facilities (I-93 South/Southeast Expressway and I-93 North) and planning, constructing, and operating additional HOV lanes, where feasible. Usually, the most effective

[1] The list of examples under this and all following categories of roadway improvements is based on two sources: findings from the CMS monitoring program and recommendations that resulted from corridor, subarea and other planning MPO studies that were also performed as part of the CMS program. In most cases, these studies were performed under the direction of a Task Advisory Group. Examples are not listed in any particular order.

candidates for such treatment are radial highways, which lead to a common employment destination.

- **Delay and safety improvement at interchanges** – Recommended projects include the redesign and construction of on- and off-ramps that are currently substandard. In some cases this type of operational improvements may be sufficient. In others cases, ramps and entire interchanges may have to be rebuilt and, in yet others, entirely new interchanges may be necessary. Examples of such improvements include:

    - Provide missing ramp connections between Route 1 and Route 16 in Revere/Chelsea
    - Make improvements to the interchanges of Route 1 with Essex Street, Main Street, and Walnut Street, Saugus
    - Grade-separate the intersection of Route 1A with Boardman Street, Boston/Revere
    - Grade-separate the intersection of Route 1A and Route 16
    - Grade-separate the intersection of Route 1A with Route 60 (Mahoney Circle), Revere
    - Provide a direct connection between Route 1A and the Chelsea Street bridge to Chelsea
    - Grade-separate Route 2 westbound with Cambridge Turnpike cutoff, Lincoln, Concord
    - Replace the Concord Rotary with a grade-separated interchange, Concord
    - Reconstruct I-93/I-95 interchange, Canton and Westwood
    - Reconstruct I-93/I-95 interchange, Woburn and Reading

- **Non-recurring congestion** – In this category, the emphasis should be on effective incident management involving the detection, verification, response, and removal of highway incidents. Incident management is the coordinated, pre-planned use of human and technological resources to restore full capacity after an incident occurs, and the provision of information to motorists until the incident is cleared. To that objective, key functions for a successful incident management program include traffic surveillance, traffic operations centers, traveler information, and other supportive Intelligent Transportation System (ITS) programs and services. Incident Management already exists in the Boston MPO region and is operated by MassHighway in coordination with other state agencies with emergency response responsibilities. In addition, a variety of supportive ITS functions are currently being planned through an updated ITS regional architecture for the Boston MPO area. These programs are very important as they seek to maintain existing capacity on the region's highways. For this reason, they deserve continuous funding and expansion/enhancement, as appropriate.

Arterial and Collector Roads

In addition to freeways and highways, the CMS program monitors the performance of about 1,300 miles of the MPO's arterial and collector roadway network. Presently, during the peak periods, 15% of the monitored roadway segments operate at speeds lower than 20 mph; 60% operate at speeds below 35 mph. The typical speed limit for these types of roads is 25 to 40 mph. These and

other results from the CMS program point to two sets of recommendations for roadway mobility improvements, depending on whether the road is in Boston proper and inner suburbs or in the outer suburbs. These recommendations target only the operational improvement of the existing arterial and collector system. On a final note, increasing capacity by adding a lane may be an appropriate strategy, but only if all other reasonable alternative strategies cannot accommodate the travel demand. In such a case, consideration should also be given to the incorporation of appropriate features to facilitate future demand management and operational improvement strategies.

1. Boston and Inner Suburbs

- *Stricter enforcement of existing parking regulations* – This strategy is necessary to reduce double-parking, illegal parking at designated MBTA bus stops, and other illegal parking activities that affect traffic throughput and pedestrian safety, and interfere with bus schedule adherence. Example roadway segments where such parking violations happen and that impede the smooth flow of traffic in the peak periods include:
    - Huntington Avenue west of Tremont Street
    - Commonwealth Avenue and Beacon streets in the Back Bay area
    - Commonwealth Avenue and Beacon streets in Kenmore Square.

- *Operational improvements and traffic management strategies* – These include signal upgrade and coordination programs, adaptive control traffic signal priority systems, pedestrian signals, and access management programs. All these strategies aim at improving the throughput at intersections, systems of intersections, and mid-block locations for general traffic, transit vehicles (buses and light rail transit) and pedestrians without adding right-of-way capacity. Presently, about 70% of the top 50 most congested CMS-monitored intersections in the region are located in the Inner Core area (of them, about half are actually located in the towns of Lynn, Revere, Everett, and Medford). In most cases, operational improvements and traffic management techniques are the only appropriate roadway improvement strategies. Such project examples include:
    - Boston's Traffic Signal System Upgrade
    - Traffic signal priority for Bus Rapid Transit implementation (Silver Line)
    - Traffic signal priority for Green Line branches

2. Outer Suburbs

Preliminary CMS results show that arterial congestion (measured as delay at monitored intersection approaches) by subregion ranks as follows: Metrowest, NSPC, SWAP, TRIC, MAGIC, SSC, and NSTF. This information may be used to guide decisions for project inclusion during preparation of the Plan and other MPO planning documents.

The table below shows the towns and routes that appear most frequently[2] in the top 25 most congested monitored intersections in each subregion.

[2] The most congested *route* may not be located in the town that has the most congested *locations*.

Metrowest	Framingham*	Route 126, 135**
NSPC	Wilmington†	Routes 28, 129, 62, 3/3A
SWAP	Milford, Bellingham, Holliston	Routes 16, 140, 126, 85
TRIC	Stoughton, Medfield, Westwood	Routes 109, 138, 139, 135
MAGIC	Burlington, Bedford, Lexington	Routes 62, 4/225, 2A, Middlesex
SSC	Weymouth, Hanover, Hingham	Routes 53, 139, 18
NSTF	Salem, Swampscott, Beverly	Routes 1A, 107, 114

* Has by far the most congested intersections in the Metrowest region.
** Both routes, by far, have the most congested intersections in the Metrowest region.
†Woburn, Stoneham, and Reading tie for second in terms of most congested intersections in NSPC.

Of the roadways listed above the following were actually studied in detail as part of corridor or subarea study that resulted from the CMS: Route 126 in Framingham, Route 16 in Milford, Route 109 from Milford to Dedham, Route 138 from Milton to Stoughton, Route 53 from Quincy to Kingston, and Route 18 (in association with the development of the Naval Air Station).

The specific recommendations for these corridors, which can be found in the relevant documentation of each study, are recommended for inclusion in the Plan for eventual implementation. Typical recommendations include:

- Downtown parking management and traffic circulation
- Traffic signal coordination
- Left turn bypass opportunities at unsignalized locations
- Intersection and traffic signal upgrades
- Pedestrian sidewalks and crosswalks
- Access management

The remaining roadways may have associated recommendations/design plans that resulted from other studies and should also be considered for inclusion in the Plan. If planning studies do not exist, then reconnaissance and/or planning studies must be initiated to examine the problems and recommend solution strategies for implementation.

All Facilities: Complementary Strategies

Transit System Improvements – Transit, and other alternative modes, play a role in reducing the demand for roadway capacity. Increasing the use and viability of these modes will have a positive effect on increasing mobility. Please refer to other planning efforts (such as the PMT and service planning studies) for recommendations of these types of strategies.

Transportation Demand Management Strategies – These include commuter programs and services geared at reducing single-occupant vehicle travel, such as carpool and vanpool ridematches, traveler information, and employee/work place incentives (including telecommuting). These programs are

usually planned and facilitated by CARAVAN, transportation management associations, regional chamber of commerce offices, and city and town officials. Since these programs aid urban and suburban mobility, they should also be considered for inclusion in the Plan.

Bicycle and Pedestrian Improvements – Roadways provide the means for pedestrians and bicyclists to access activity centers and transit stations. Furthermore, off-street connections to/from roadways complement the existing on-street system. Making sure that both systems are integrated (i.e., connected safely and without impediments) helps to increase the mobility and accessibility of pedestrians and bicyclists. The CMS recommends that roadway projects integrate the construction of improvements that will enhance the non-motorized travel experience and connectivity. In addition, the CMS recommends studies and programs that will address the accessibility of transit stations by bicycle and walk modes.

APPENDIX

B

ENVIRONMENTAL JUSTICE–RELATED DOCUMENTS

CONTENTS

PROFILES OF COMMUNITIES OF CONCERN

Allston/Brighton

The neighborhoods in Allston/Brighton that comprise the Environmental Justice Community of Concern encompass traffic analysis zones (TAZs) 101, 103, 105, 106, 109, and 111. These TAZs run from the Charles River, south along the I-90 ramps and along Commonwealth Avenue to Cleveland Circle. Over 28,800 people live in these neighborhoods, approximately 37% of whom are minorities. The median income within the individual traffic analysis zones ranges from $22,396 to $32,500. The population in these TAZs is shown in Table B-1.

This area of Allston/Brighton is served by the “B” Green Line and five bus routes. The “B” Line makes 16 stops in the community of concern. The roundtrip fare on the Green Line is $2.00.

TABLE B-1
Population Characteristics by TAZ in Allston/Brighton

TAZ	Population	Minority	Minority %	Median Income	% of Regional Medium Income
101	1,764	389	22.05%	$32,500	58.24%
103	1,763	767	43.51%	$30,888	55.35%
105	5,349	2,488	46.51%	$25,559	45.80%
106	8,079	3,116	38.57%	$29,155	52.25%
109	5,533	2,441	44.12%	$22,396	40.14%
111	6,385	1,538	24.09%	$32,419	58.10%

The bus lines that serve this area of Allston/Brighton are:

57 - Watertown Square to Kenmore Station

64 - Oak Square to Central Square or Kendall Square

66 - Harvard Square to Dudley Station

70/70A - Cedarwood, N. Waltham or Watertown Square to University Park

86 - Sullivan Square Station to Cleveland Circle

The roundtrip fare on the bus system is $1.50.

The Massachusetts Turnpike bisects the Allston/Brighton community of concern and has major on and off ramps in the area.

According to the 2000 Census, approximately 19% of the households located within the community of concern own one or more vehicles, while the journey-to-work mode split for automobiles is 40%. Within this area of Allston/Brighton, approximately 15,901 people 16 years of age or older are currently in the workforce or actively seeking employment, while 10,734 are either retired, unable to work, or are chronically unemployed and have ceased seeking employment. Based upon these variables, the unemployment rate as reflected in the 2000 Census ranges from 2.6 to 41.7% in these TAZs in Allston/Brighton.

Chinatown

The Boston neighborhood of Chinatown that comprises the Environmental Justice Community of Concern encompasses traffic analysis zones (TAZs) 37, 40, 41, and 42. Two major highways bound Chinatown, I-90 to the south and I-93 to the east. About 7,000 people live in this neighborhood, 68% of whom are minorities. The median income within the individual traffic analysis zones range from $9,071 to $18,359. The population in these TAZs is shown in Table B-2.

Chinatown is served by the Red, Orange, and Green rapid transit lines. Access to the rapid transit system can be made at South Station (Red), Park St. (Green and Red), Downtown Crossing (Red and Orange), Chinatown (Orange), New England Medical Center (Orange) and Boylston

TABLE B-2
Population Characteristics by TAZ in Chinatown

TAZ	Population	Minority	Minority %	Median Income	% of Regional Median Income
37	1,421	426	26.69%	$17,220	30.86%
40	941	208	22.10%	$9,071	16.26%
41	2,233	1,851	82.89%	$18,359	32.90%
42	2,248	2,166	96.35%	$14,050	25.18%

(Green). Boylston station is the only station that is not accessible to all persons. The roundtrip fare within the rapid transit system is $2.00.

South Station is the terminus for all commuter rail lines south of the Charles River: the Worcester, Needham, Franklin, Attleboro/Stoughton, Fairmount, Middleborough/Lakeville and Plymouth/Kingston. Commuter rail fares range from $4.00 to $11.50 roundtrip depending on the destination.

The Silver Line connects Boylston, Chinatown and New England Medical Center stations to Dudley Square. Bus system fare (including the Silver line) is $1.50 roundtrip.

Several Bus lines serve the Chinatown community:

3/6 Boston Marine Industrial Park

7 City Point, Otis and Summer Streets

11 City Point Bayview route

448/449 Wonderland, Lynn, Marblehead

459 North Beverly and Salem Depot

500 Express Bus to Riverside

501 Express Bus to Brighton Center

504 Express Bus to Watertown Square and Copley Square

505 Express Bus to Waltham

553/554 Roberts, Waltham and Newton Corner

556/558 Waltham Highlands via Newton Corner

Intercity bus and train service is available at South Station. Additional bus service is provided from Chinatown to New York by Fung Wah Transport Vans, Travel Pack, and Sunshine Travel.

According to the 2000 Census, approximately 28% of the households located within these TAZs own one or more vehicles, while the journey-to-work mode split for automobiles is 24%. Within the area of Chinatown, approximately 3,603 people 16 years of age or older are currently in the workforce or actively seeking employment, while 2,660 are either retired, unable to work, or are chronically unemployed and have ceased seeking employment. Based upon these variables, the unemployment rate as reflected in the 2000 Census ranges from 6.8% to 36.5% in these TAZs in Chinatown.

The transportation needs of this community include easy access to transit and highways, Orange Line extension and outreach in local languages. Many residents are Asian immigrants with good manufacturing skills. Because of this, the community has a significant number of workers reverse commuting to the suburbs to skilled manufacturing jobs. In many cases these workers use a “shadow” private transit network operated by employers. The creation of an employer-managed Chinatown TMA is suggested by some community members.

Chinatown is located at the hub of many regional transportation facilities. The I-90 and I-93 intersection defines the southern and eastern boarders of Chinatown; South Station is to the east of Chinatown. This neighborhood has endured 10 years of Central Artery/Tunnel construction during which congestion and environmental impacts such as air and noise pollution were very high. Mitigation of the environmental impacts of these facilities is important to the community. An important component of that is the community's active role in determining the future land uses of new development sites created by the Central Artery development.

Community connections to highways are important due to the reverse commuting to car dependent employment centers. Long-term solutions include more comprehensive suburban transit options including the North-South rail link. Currently, a large segment of the Chinatown population uses the Red Line to travel between Boston and Quincy.

TABLE B-3
Population Characteristics by TAZ in Dorchester

TAZ	Population	Minority	Minority %	Median Income	% of Regional Median Income
159	3,882	3,603	92.81%	$27,548	49.37%
160	3,458	2,482	71.78%	$36,667	65.71%
161	4,795	4,263	88.91%	$32,725	58.65%
163	3,346	2,398	71.67%	$31,553	56.55%
165	3,190	2,187	68.56%	$32,958	59.06%
166	3,547	3,385	95.43%	$37,145	66.57%
167	6,291	5,729	91.07%	$35,583	63.77%
168	3,684	3,596	97.61%	$32,417	58.09%
171	6,750	5,843	86.56%	$41,387	74.17%
175	7,679	6,279	81.77%	$36,009	64.53%

Dorchester

The neighborhoods in Dorchester that comprise the Environmental Justice Community of Concern encompass traffic analysis zones (TAZs) 159, 160, 161, 163, 165, 166, 167, 168, 171, and 175. This area extends from Uphams Corner in the north to Gallivan Boulevard to the south between the Fairmount commuter rail line and the Red Line. The area around UMASS Boston is included in the communities of concern. Over 46,000 people live in these neighborhoods, over 85% of whom are minorities. The median income within the individual traffic analysis zones range from $27,548 to $41,387. The population in these TAZs is shown in Table B-3.

This area of Dorchester is served by the Fairmount commuter rail line which currently only has stations on the northern (Uphams Corner) and southern (Morton St.) corners of the environmental justice community of Dorchester. The stations are not accessible to all persons and have no parking available. There are 22 round trips a day on the Fairmount line that operates inbound service from 6:07 AM to 10:17 PM, while outbound service runs from 6:08 AM to 9:48 PM. The roundtrip fare is $3.00.

The MBTA's Red Line serves the area with the Fields Corner, Shawmut, and Ashmont stations. Round trip fare on the Red line is $2.00. Fields Corner and Shawmut stations are not accessible to all persons, while Ashmont Station is accessible and has bicycle storage facilities. Transfer to the bus system is available at the Fields Corner and Ashmont stations. Roundtrip fare on the bus system is $1.50.

The Fields Corner Red Line Station is a bus hub with service to:

15 - Ruggles Station via Kane Square

17 - Andrew Station via Uphams Corner

18 - Ashmont Station and Andrew Station

19 - Ruggles Station

20 - Neponset and Adams Belt

210 - Quincy Center

The Ashmont Red Line Station is a bus line hub with service to:

18 - Andrew Station via Fields Corner

21 - Forest Hills

23 - Ruggles Station

26 - Norfolk and Morton Belt Line

215 - Quincy Center

217 - Wollaston Station

240 - Holbrook/Randolph commuter rail station

Brockton Area Transit also operates a bus to the Red Line's Ashmont Station.

Other buses that serve this area are:

8 - Harbor Point/UMass to Kenmore Station

16 - Forest Hills Station to Andrew Station or UMass

27 - Mattapan Station to Ashmont Station via River St.

41 - Centre and Eliot Stations to JFK/UMass Station

According to the 2000 Census, approximately 65% of the households located within these TAZs own one or more vehicles, while the journey-to-work mode split for automobiles is 59%. Within this area of Dorchester, approximately 20,183 people 16 years of age or older are currently in the workforce or actively seeking employment, while 13,114 are either retired, unable to work, or are chronically unemployed and have ceased seeking employment. Based upon these variables, the unemployment rate as reflected in the 2000 Census ranges from 8.0 to 13.8% in these TAZs in Dorchester.

Community representatives expressed the need for improved quality of service for all transit modes operating in Dorchester:

- Restoration of the Red Line stations
- Rehabilitation of the Indigo (Fairmount) Line
- Transfer Silver Line technology to other buses to improve quality of service-possibly with dedicated lanes for right-of-way B.
- Destinations that need better connections to Dorchester include, South Bay, downtown Boston, and Jamaica Plain. Despite Jamaica Plain's proximity, travel time from neighborhoods in Dorchester can be excessive.
- Increased bus frequency to reduce overcrowding

East Boston

The neighborhoods in East Boston that comprise the Environmental Justice Community of Concern encompass traffic analysis zones (TAZs) 69, 70, 71, 72, 73, 78, and 79. This area includes all the communities south of Waldemar Avenue on the East Boston Peninsula with the exception of Logan International Airport. Over 38,000 people live in these neighborhoods, over 50% of whom are minorities. The median income within the individual traffic analysis zones range from $24,693 to $40,000. The population in these TAZs is shown in Table B-4.

Five stations of the Blue line serve this area of East Boston:

- Maverick - Not accessible, bicycle parking

TABLE B-4
Population Characteristics by TAZ in East Boston

TAZ	Population	Minority	Minority %	Median Income	% of Regional Median Income
69	7,035	3,536	50.26%	$33,058	59.24%
70	4,388	3,181	72.49%	$24,693	44.25%
71	8,939	5,539	61.96%	$30,632	54.90%
72	4,587	2,564	55.90%	$29,212	52.35%
73	3,697	1,865	50.45%	$32,359	57.99%
78	3,914	774	19.78%	$28,496	51.07%
79	5,797	1,869	32.24%	$40,000	71.68%

facilities, no parking facilities

- Airport - Not accessible, no parking facilities*
- Wood Island - Accessible, bicycle parking facilities, no parking facilities
- Orient Heights - Accessible, bicycle parking facilities, 434 parking spaces, 2 accessible parking spaces
- Suffolk Downs - Accessible, bicycle parking facilities, 110 parking spaces, 4 accessible parking spaces

Roundtrip fare on the Blue line is $2.00.

Roundtrip fare on the bus system is $1.50. Buses from Maverick Station include:

114/116/117 - Wonderland Station via Revere Street

120 - Orient Heights Station via Bennington Street

121- Wood Island Station via Lexington Street

Other lines:

112 - Wellington Station via Mystic Mall, Quigley Hospital, and Admiral's Hill

According to the 2000 Census, approximately 59% of the households located within these TAZs own one or more vehicles, while the journey-to-work mode split for automobiles is 47%. Within this area of East Boston, approximately 17,786 people16 years of age or older are currently in the workforce or actively seeking employment, while 12,393 are either retired, unable to work, or are chronically unemployed and have ceased seeking employment. Based upon these variables, the unemployment rate as reflected in the 2000 Census ranges from 4.6% to 9.1% in these TAZs in East Boston.

East Boston has a disproportionate share of regional transportation burdens due to its position between downtown and the north shore communities and the proximity of Logan International Airport. The Sumner and Callahan Tunnels enter East Boston from downtown Boston. Several express buses (424, 434, 441, 442, 450 and 455) pass through the neighborhood without stopping.

* The Airport Blue Line Station is currently under construction and will be made accessible

Jamaica Plain/Mission Hill

The neighborhoods in Jamaica Plain/Mission Hill that comprise the Environmental Justice Community of Concern encompass traffic analysis zones (TAZs) 93, 99, 100 and 131. This area extends from Ruggles Street in the north to Center Street in the south, bounded by the Longwood "D" Green Line and the Orange Line. Over 19,000 people live in these neighborhoods, over 60% of whom are minorities. The median income within the individual traffic analysis zones range from $15,361 to $32,454. The population in these TAZs is shown in Table B-5.

The Arborway "E" Green Line and the Orange Line serve this area of Jamaica Plain/Mission Hill. Roundtrip fare on the Green Line is $2.00. None of the transit stations have onsite parking available. The accessible stations in the area are: Heath Street, Brigham Circle and Longwood

TABLE B-5
Population Characteristics by TAZ in Jamaica Plain/Mission Hill

TAZ	Population	Minority	Minority %	Median Income	% of Regional Median Income
93	4,166	2,261	54.27%	$15,361	27.53%
99	8,118	4,267	52.56%	$29,188	52.31%
100	3,640	2,150	59.07%	$32,454	58.16%
131	3,089	2,786	90.19%	$19,687	35.28%

Medical Area stations of the Green Line; and Ruggles, Roxbury Crossing and Jackson Square stations of the Orange Line.

Roundtrip fare on the bus system is $1.50. Several bus lines serve these neighborhoods.

Ruggles Orange Line Station is a major bus hub with service to:

CT2 - Sullivan Station via Kendall Square

CT3 - Beth Israel Deaconess Medical Center to Andrew Station

8 - Harbor Point/UMass to Kenmore Station

15 - Kane Square or Fields Corner Station

19 - Fields Corner Station via Grove Hall and Dudley Square

22 - Ashmont Station via Talbot Avenue and Jackson Square

23 - Ashmont Station via Washington Street

28 - Mattapan Station via Dudley Square

42 - Forest Hills Station via Washington Street

43 - Park and Tremont Streets

44 - Jackson Square

45 - Franklin Park Zoo via Blue Hill Avenue

66 - Harvard Square to Dudley Station

MIS (Mission Hill Link bus)

Bus service from Jackson Square is available to:

29 - Mattapan Station via Seaver Street

41 - Centre and Eliot stations to JFK/UMass Station via Dudley Station

44 - Ruggles Station via Seaver St.

48 - Jamaica Plain Loop Monument via Green Street

Other lines serving this area are:

14 - Heath Street to Roslindale via Dudley Station

39 - Forest Hills Station to Back Bay Station via Huntington Ave

66 - Harvard Square to Dudley Station

Major roadways serving these neighborhoods include Huntington Avenue and Tremont Street.

According to the 2000 Census, approximately 52% of the households located within these TAZs own one or more vehicles, while the journey-to-work mode split for automobiles is 34%. Within this area of Jamaica Plain/Mission Hill, approximately 9,005 people 16 years of age or older are currently in the workforce or actively seeking employment, while 7,003 are either retired, unable to work, or are chronically unemployed and have ceased seeking employment. Based upon these variables, the unemployment rate as reflected in the 2000 Census ranges from 4.6% to 15.0% in these TAZs in Jamaica Plain/Mission Hill.

Commuter rail lines of Attleboro/Stoughton, Needham and Franklin pass through the community, but do not stop.

Mattapan

The neighborhoods in Mattapan that comprise the Environmental Justice Community of Concern encompass traffic analysis zones (TAZs) 173, 174, 196, 197, and 198. This area is bordered by Harvard Street on the west, Talbot Avenue on the north, Washington Street on the east and the Neponset River to the south. Over 35,000 people live in these neighborhoods, over 97% of whom are minorities. The median income within the individual traffic analysis zones range from $26,845 to $38,517. The population in these TAZs is shown in Table B-6.

The Fairmount commuter rail line serves this area of Mattapan. The Morton Street station is not accessible to all persons and has no parking facilities. Roundtrip fare to South Station from Morton Street Station is $3.00.

TABLE B-6
Population Characteristics by TAZ in Mattapan

TAZ	Population	Minority	Minority %	Median Income	% of Regional Median Income
173	8,093	7,985	98.67%	$26,845	48.11%
174	7,766	7,404	95.34%	$36,556	65.51%
196	6,172	5,947	96.35%	$38,517	69.03%
197	8,147	8,067	99.02%	$32,439	58.13%
198	5,321	5,120	96.22%	$37,676	67.52%

The MBTA's Red Line and Mattapan High Speed Line serve the area with the following stations:

- Fields Corner - Not accessible, no parking facilities
- Shawmut - Not accessible, no parking facilities
- Ashmont - Accessible, bicycle parking facilities
- Cedar Grove - Not accessible, no parking facilities
- Butler - Not accessible, 60 parking spaces
- Milton - Not accessible, 41 parking spaces, 4 accessible parking spaces
- Central Avenue - Not accessible, no parking facilities
- Valley Road - Not accessible, no parking facilities
- Capen Street - Not accessible, no parking facilities
- Mattapan - Not accessible, bicycle parking facilities, 216 parking spaces, 4 accessible spaces

Round trip fare on the Red Line is $2:00. Transfer to the bus system is available at the Fields Corner and Ashmont stations:

The Ashmont Red Line Station is a bus line hub with service to:

18 - Andrew Station via Fields Corner

21 - Forest Hills

23 - Ruggles Station

26 - Norfolk and Morton Belt Line

27 - Mattapan Station

215 - Quincy Center

217 - Wollaston Station

240 - Holbrook/Randolph commuter rail station

Brockton Area Transit also operates a bus to the Red Line's Ashmont Station.

From Mattapan Station

24 - Wakefield Avenue and Truman Parkway

27 - Ashmont station

28 - Ruggles Station via Dudley Square

29 - Jackson Square via Seaver Street

30 - Forest Hills Station or Roslindale Square

31 - Forest Hills Station via Morton Street

33 - Dedham Line via River Street

245 - Quincy Center via Quincy Hospital

716 - Cobbs Corner (operated by A&B Bus Lines)

Roundtrip fare on the bus system is $1.50.

According to the 2000 Census, approximately 71% of the households located within these TAZs own one or more vehicles, while the journey-to-work mode split for automobiles is 62%. Within

this area of Mattapan, approximately 14,751 people16 years of age or older are currently in the workforce or actively seeking employment, while 10,707 are either retired, unable to work, or are chronically unemployed and have ceased seeking employment. Based upon these variables, the unemployment rate as reflected in the 2000 Census ranges from 7.3% to 14.0% in these TAZs in Mattapan.

Mattapan is a community of low income, middle class and affluent residents. The proposed improved Fairmount Line stop at Morton Street will be crucial to the area's mixed use redevelopment.

Community issues:

- A commuter rail station in Mattapan
- A Red Line extension to Mattapan
- Improved safety and convenience on the Red Line

Roxbury

The neighborhoods in Roxbury that comprise the Environmental Justice Community of Concern encompass traffic analysis zones (TAZs) 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 133, 134, and 170. This area extends from Massachusetts Avenue to Morton Street north to south, and the Fairmount Commuter Rail Line and the Orange Line east to west. Over 64,000 people live in these neighborhoods, over 94% of whom are minorities. The median income within the individual traffic analysis zones range from $16,646 to $39,366. The population in these TAZs is shown in Table B-7.

These neighborhoods of Roxbury are served by the Fairmount commuter rail line. Morton Street and Uphams Corner stations are not accessible and have no onsite parking. Fare is $3.00 round trip. The Orange Line has five stations in the Roxbury Environmental Justice Area of Concern. All Orange Line stations are accessible. Stony

TABLE B-7
Population Characteristics by TAZ in Roxbury

TAZ	Population	Minority	Minority %	Median Income	% of Regional Median Income
115	1,841	1,404	76.26%	$32,794	58.77%
116	2,189	2,081	95.06%	$18,919	33.91%
117	4,711	4,278	90.81%	$16,646	29.83%
118	2,531	2,125	83.96%	$36,591	65.58%
119	2,921	2,792	95.58%	$32,397	58.06%
120	2,424	2,355	97.15%	$26,238	47.02%
121	4,222	4,035	95.57%	$24,933	44.68%
122	2,863	2,818	98.43%	$25,132	45.04%
123	4,575	4,488	98.10%	$28,175	50.49%
124	3,250	3,070	94.46%	$24,000	43.01%
125	4,575	4,537	99.17%	$24,778	44.41%
126	2,806	2,761	98.40%	$27,147	48.65%
127	4,251	4,197	98.73%	$18,478	33.11%
128	3,252	3,150	96.86%	$37,250	66.76%
129	5,139	5,100	99.24%	$28,188	50.52%
133	4,017	3,240	80.66%	$27,204	48.75%
134	2,502	1,953	78.06%	$39,366	70.55%
170	6,470	6,361	98.32%	$23,151	41.49%

Brook and Jackson Square Station have bicycle parking facilities. Round trip fare is $2.00 within the rapid transit system.

Ruggles Orange Line Station is a major bus hub with service to:

CT2 - Sullivan Station via Kendall Square

CT3 - Beth Israel Deaconess Medical Center to Andrew Station

8 - Harbor Point/UMass to Kenmore Station

15 - Kane Square or Fields Corner Station

19 - Fields Corner Station via Grove Hall and Dudley Square

22 - Ashmont Station via Talbot Avenue and Jackson Square

23 - Ashmont Station via Washington Street

28 - Mattapan Station via Dudley Square

42 - Forest Hills Station via Washington Street

43 - Park and Tremont Streets

44 - Jackson Square

45 - Franklin Park Zoo via Blue Hill Avenue

66 - Harvard Square to Dudley Station

MIS (Mission Hill Link bus)

Bus service from Jackson Square is available to:

29 - Mattapan Station via Seaver Street

41 - Centre and Eliot stations to JFK/UMass Station via Dudley Station

44 - Ruggles Station via Seaver Street

48 - Jamaica Plain Loop Monument via Green Street

Other lines serving this area are:

CT1- Central Square (Cambridge) to Boston Medical Center

1 - Harvard/Holyoke Gate to Dudley Square

14 - Heath Street to Roslindale via Dudley Station

16 - Forest Hills Station to Andrew Station

21 - Ashmont Station to Forest Hills Station via Neponset and Adams Belt

29 - Mattapan Station to Jackson Square via Seaver Street

31 - Mattapan Station to Forest Hills Station via Morton Street

47 - Central Square (Cambridge) to Broadway Station

Roundtrip fare on the bus system is $1.50. Major roadways in the area are Massachusetts Avenue, Blue Hill Avenue, and Washington Street.

According to the 2000 Census, approximately 57% of the households located within these TAZs own one or more vehicles, while the journey-to-work mode split for automobiles is 55%. Within this area of Roxbury, approximately 25,426 people 16 years of age or older are currently in the workforce or actively seeking employment, while 20,605 are either retired, unable to work, or are chronically unemployed and have ceased seeking employment. Based upon these variables, the unemployment rate as reflected in the 2000 Census ranges from 7.1% to 18.7% in these TAZs in Roxbury.

Roxbury is an area of heavy transit usage. Improvements suggested by community representatives include:

- More reliable and less crowded bus service
- Phasing out of diesel bus service to lower-emission vehicles
- Improved bus to rapid transit connections
- Conversion of bus routes to transit
- More direct access to rapid transit (Light Rail/Washington Street, new Fairmount Line stops)
- Upgrade Ashmont Line stations
- Plans for addressing housing cost impacts from transportation investments.

TABLE B-8
Population Characteristics by TAZ in South Boston

TAZ	Population	Minority	Minority %	Median Income	% of Regional Median Income
152	5,026	1,526	30.34%	$25,891	46.40%
156	2,903	1,348	46.43%	$15,732	28.19%

South Boston

The neighborhood in South Boston that comprises the Environmental Justice Community of Concern encompasses traffic analysis zones (TAZs) 152 and 156. These neighborhoods are south of Dorchester Street and east of the I-93. Just under 8,000 people live in these neighborhoods, over 36% of whom are minorities. The median income within the individual traffic analysis zones range from $15,732 to $25,891. The population in these TAZs is shown in Table B-8.

JFK/UMass Station provides access to both the commuter rail system and the rapid transit system. The Middleborough/Lakeville and Plymouth/Kingston commuter rail lines stop at the accessible JFK/UMass Station. Round trip fare to zone 8 costs $10.00; while fare to downtown Boston is $2.00 roundtrip. Inbound service on the Middleborough/Lakeville has three trains in the morning (7:45 A.M. to 8:52 A.M.) and three outbound trains in the evening (3:51 P.M. to 8:16 P.M.). Inbound service on the Plymouth/Kingston line stops at JFK/UMass on four trains in the morning (7:58 A.M. to 10:52 A.M.); four trains stop with outbound service in the evening (2:51 P.M. to 10:46 P.M.)

The Red Line serves this area of South Boston with two stations. JFK/UMass and Andrew stations are accessible but have no parking facilities onsite. Roundtrip fare on the MBTA's rapid transit system is $2.00. The Red Line operates from 5:20 A.M. to 12:15 A.M. Andrew station is also a bus hub:

CT3 - Beth Israel Deaconess Medical Center via B.U. Medical Center

5 - City Point to McCormack Housing

10 - City Point to Copley Square via B.U. Medical Area

16 - Forest Hills Station via Columbia Road

17 - Fields Corner Station via Uphams Corner and Edward Everett Square

18 - Ashmont Station via Fields Corner Station

171 - Dudley Station to Logan Airport

Other buses serving the community are:

8 - Harbor Point/UMass to Kenmore Station

9 - City Point to Copley Square via Broadway Station

11 - City Point to Downtown Bayview route

Roundtrip fare on the bus system is $1.50. Major roadways serving this area are Old Colony Road, Columbia Road and Dorchester Street.

According to the 2000 Census, approximately 55% of the households located within these TAZs own one or more vehicles, while the journey-to-work mode split for automobiles is 51%. Within this area of South Boston, approximately 3,094 people 16 years of age or older are currently in the workforce or actively seeking employment, while 2,914 are either retired, unable to work, or are chronically unemployed and have ceased seeking employment. Based upon these variables, the unemployment rate as reflected in the 2000 Census ranges from 6.2% to 7.3% in these TAZs in South Boston.

Many regional transportation facilities pass through the community, however access to these facilities from the community is limited.

South End

The neighborhoods in the South End of Boston that comprise the Environmental Justice Community of Concern encompass traffic analysis zones (TAZs) 62, 64, 66, and 67. This area is roughly bounded by Massachusetts Avenue to the south, Tremont Street to the west, the Massachusetts Turnpike to the north and the I-93 Central Artery to the east. Over 6,400 people live in these neighborhoods, over 74% of whom are minorities. The median income within the individual traffic analysis zones range from $13,698 to $21,163. The population in these TAZs is shown in Table B-9.

This area of the South End is within the capture area of the Orange Line stations of New England Medical Center, Back Bay/South End and Massachusetts Avenue. All three stations are accessible. Roundtrip fare on the MBTA rapid transit system is $2.00.

The Silver Line bus transit service runs through the center of the Environmental Justice Community of Concern. The accessible stops of Herald Street, East Berkeley Street, Union Park Street, Newton Street, and Worcester Square are all located along Washington Street.

Roundtrip fare on the bus system is $1.50. Buses serving the area are:

CT1 - Central Square (Cambridge) to Boston Medical Center

CT3 - Beth Israel Deaconess Medical Center to Andrew Station

3 - Boston Marine Industrial Park to South Station

8 - Harbor Point/UMass to Kenmore Station

9 - City Point to Copley Square via Broadway Station

10 - City Point to Copley Square via Andrew Station

11 - City Point to Downtown Bayview route

43 - Ruggles Station to Park and Tremont Streets

47 - Central Square (Cambridge) to Broadway Station

According to the 2000 Census, approximately 38% of the households located within these TAZs own one or more vehicles, while the journey-to-work mode split for automobiles is 40%. Within this area of the South End, approximately 2,469 people 16 years of age or older are currently in the workforce or actively seeking employment, while 2,782 are either retired, unable to work, or are chronically unemployed and have ceased seeking employment. Based upon these variables, the unemployment rate as reflected in the 2000 Census ranges from 6.6% to 31.7% in these TAZs in the South End.

This neighborhood of the South End is located at the interchange of the Massachusetts Turnpike and I-93. This area is a major component of the Central Artery/Tunnel project, under construction for the past 10 years. The MBTA's Albany Street bus garage facility is also in the proximity of the community.

TABLE B-9
Population Characteristics by TAZ in South End

TAZ	Population	Minority	Minority %	Median Income	% of Regional Median Income
62	1,832	1,730	94.43%	$13,698	24.55%
64	2,392	1,702	71.15%	$20,772	37.23%
66	1,344	866	64.43%	$21,163	37.93%
67	906	509	56.18%	$12,995	23.29%

Cambridge

The neighborhoods in Cambridge that comprise the Environmental Justice Community of Concern encompass traffic analysis zones (TAZs) 265, 266, and 288. These represent two separate communities in the city of Cambridge. Traffic analysis zones 265 and 266 are located east of the Central Square Red Line Station, north of Massachusetts Avenue and south of Hampshire Street. TAZ 288 is located east of the Alewife Red Line Station. Over 9,600 people live in these neighborhoods, over 67% of whom are minorities. The median income within the individual traffic analysis zones range from $26,044 to $35,500. The population in these TAZs is shown in Table B-10.

These areas of Cambridge are served by the Red Line. TAZs 265 and 266 are located near Central Square Station (accessible, no parking available. TAZs 288 is located near Alewife Station. Alewife Station is accessible and has 2,595 parking spaces (24 accessible).

There are many buses serving these two areas of Cambridge. Roundtrip fare on the bus system is $1.50. For TAZs 265 and 266 bus lines from Central Square Station are:

CT1 - B.U. Medical Center

1 - Harvard/Holyoke Gate to Dudley Square via Massachusetts Avenue

47 - Broadway Station via South End Medical Area

64 - Oak Square

83 - Rindge Avenue via Porter Square

91 - Sullivan Square Station via Washington Street

Other bus lines serving TAZs 265 and 266 are:

CT2 - Sullivan Square to Ruggles Station via Kendall Square

68 - Harvard/Holyoke Gate to Kendall Square

70/70A - Cedarwood, North Waltham or Watertown Square to University Park

85 - Spring Hill to Kendall via Summer St.

For TAZ 288, bus lines serving the community are:

Lines from Alewife Station

62/76 - Bedford V.A. Hospital or Hanscom Air Base

79 - Arlington Heights via Massachusetts Avenue

84 - Arlmont Village

350 - North Burlington via Burlington

Other Lines serving TAZ 288:

77 - Arlington Heights to Harvard Station via Massachusetts Avenue

77A - North Cambridge to Harvard Station (local)

78 - Arlmont Village to Harvard Station via Park Circle

83 - Rindge Avenue to Central Square via Porter Square

The principle roadway serving the areas is Massachusetts Avenue.

According to the 2000 Census, approximately 60% of the households located within these TAZs

TABLE B-10
Population Characteristics by TAZ in Cambridge

TAZ	Population	Minority	Minority %	Median Income	% of Regional Median Income
265	1,940	1,367	70.46%	$26,044	46.67%
266	3,255	2,029	62.33%	$35,500	63.62%
288	4,493	3,143	69.95%	$30,398	54.48%

own one or more vehicles, while the journey-to-work mode split for automobiles is 37%. Within this area of Cambridge, approximately 5,250 people 16 years of age or older are currently in the workforce or actively seeking employment, while 2,467 are either retired, unable to work, or are chronically unemployed and have ceased seeking employment. Based upon these variables, the unemployment rate as reflected in the 2000 Census ranges from 5.8% to 7.9% in these TAZs in Cambridge.

Transit projects improving system connectivity such as the Urban Ring also concern these neighborhoods.

Chelsea

The neighborhoods in Chelsea that comprise the Environmental Justice Community of Concern encompass traffic analysis zones (TAZs) 204, 205, 206, 207, and 208. This area represents the entire city of Chelsea, from the Revere Beach Parkway to the north and Chelsea Creek to the south and east. Over 35,000 people live in these neighborhoods, over 61% of whom are minorities. The median income within the individual traffic analysis zones range from $28,390 to $32,545. The population in these TAZs is shown in Table B-11.

Chelsea is served by the Rockport/Newburyport commuter rail line. The station is not accessible to all persons and has no parking available on site. 25 round trip trains operate on the line each day with service concentrated in the peak commuting hours. Inbound service operates from 6:03 AM to 11:44 PM, while outbound service runs from 6:53 AM to 12:21 AM. The roundtrip fare within Zone 1 is $2.00, while the maximum interzone fare (to the northern termini) is $7.00 roundtrip. Chelsea has no direct rapid transit access. Route 1 bisects the city of Chelsea intersecting with Revere Beach Parkway in the northern section of the city.

Bus lines serving Chelsea:

111 From Revere to Haymarket

112 From Wellington Station and Quigley Hospital to Wood Island Station

114/116/117 Wonderland Station to Maverick Station

Roundtrip fare on the bus system is $1.50.

According to the 2000 Census, approximately 68% of the households located within these TAZs own one or more vehicles, while the journey-to-work mode split for automobiles is 65%. Within this area of Chelsea, approximately 14,212 people 16 years of age or older are currently in the workforce or actively seeking employment, while 12,182 are either retired, unable to work, or are chronically unemployed and have ceased seeking employment. Based upon these variables, the unemployment rate as reflected in the 2000 Census ranges from 2.9% to 8.5% in these TAZs in Chelsea.

The environmental justice community of Chelsea has several transportation needs. Community representatives highlighted improvement in transit connectivity as a major concern. Community

TABLE B-11
Population Characteristics by TAZ in Chelsea

TAZ	Population	Minority	Minority %	Median Income	% of Regional Median Income
204	7,541	5,722	75.88%	$31,801	56.99%
205	4,597	3,482	75.75%	$31,071	55.68%
206	4,338	2,513	57.93%	$28,304	50.72%
207	10,256	6,513	63.50%	$28,390	50.88%
208	8,348	3,426	41.04%	$32,545	58.32%

resources such as Chelsea High School and medical centers need to be connected to the community via transit in a more effective manner. Long travel times to many points in the Boston region (even geographically close points) create major disconnects for the environmental justice community of Chelsea. The quality of service on buses are substandard: they are overcrowded, have long headways, no shelters, malfunctioning heaters or air conditioners, and no schedules are posted.

The roadway system is congested and creates both air and noise pollution in the community. Route 1 creates a major community burden, both as a physical barrier and as a generator of congestion and pollution. The two bridges connecting to East Boston are unsafe. Burdens such as heavy truck use on the Parkway Plaza connection to Boston on Routes 16 and 1, were also pointed out by community representatives.

Improvements suggested by community representatives include:

- Posting schedules at the commuter rail stop
- Improving Maverick Station
- Creation of the Urban Ring transit system
- Water taxi connection
- Improvement of Chelsea Street Bridge and other community bridges.

Framingham

The neighborhood in Framingham that comprises the Environmental Justice Community of Concern encompasses traffic analysis zone (TAZ) 594. This TAZ is located south of Waverly Street and north of the General Motors facility. Over 9,400 people live in this neighborhood, over 56% of whom are minorities. The median income in this traffic analysis zone is $27,152. The population in this TAZ is shown in Table B-12.

This area of Framingham is served by the Worcester commuter rail line. The station is handicapped accessible and includes a 166-space parking garage, 8 spaces of which are reserved for persons with disabilities. Inbound service operates from 6:05 AM to 12:30 PM, while outbound service runs from 5:50 AM to12:12 AM. The roundtrip fare within Zone 5 is $4.00, while the maximum interzone fare (to the northern termini) is $11.50 roundtrip.

Local Intra-Framingham Transit (LIFT) operates five bus lines in Framingham. The fare is $1.50 each way ($0.75 for seniors and disabled), and they operate on one-hour headways.

According to the 2000 Census, approximately 81% of the households located within this TAZ own one or more vehicles, while the journey-to-work mode split for automobiles is 91%. Within this area of Framingham, approximately 4,085 people 16 years of age or older are currently in the workforce or actively seeking employment, while 2,884 are either retired, unable to work, or are chronically unemployed and have ceased seeking employment. Based upon these variables, the unemployment rate as reflected in the 2000 Census is 6.4% in this TAZ in Framingham.

Lynn

The neighborhoods in Lynn that comprise the Environmental Justice Community of Concern encompass traffic analysis zones (TAZs) 303, 304, 305, 307, 308, 309, 311, and 313. This area extends from just north of Eastern Avenue (Route 129) to the Revere city line and from just west of Western Avenue (Route 107) to the Atlantic Ocean. Over 46,000 people live in these neighborhoods, over 53% of whom are minorities. The

TABLE B-12
Population Characteristics by TAZ in Framingham

TAZ	Population	Minority	Minority %	Median Income	% of Regional Median Income
594	9,417	5,346	56.77%	$27,152	48.66%

median income within the individual traffic analysis zones ranges from $18,489 to $36,474. The population in these TAZs is shown in Table B-13.

This area of Lynn is served by the Rockport/Newburyport commuter rail line. The station is accessible and includes a 965-space parking garage, 23 spaces of which are reserved for persons with disabilities. Inbound service operates from 5:53 AM to 11:34 PM, while outbound service runs from 7:36 AM to 12:29 AM. The roundtrip fare within Zone 2 is $5.50, while the maximum interzone fare (to the northern termini) is $7.00 roundtrip. These TAZs are also served by myriad bus routes providing connections to downtown Boston, the major shopping malls in Danvers, Peabody and Saugus, and some major employment sites on the North Shore (e.g., Centennial Park in Peabody). Lynn has no direct transit access. The principal roadways serving this area of Lynn are Route 1A and Route 107 for north/south travel and Route 129 for radial travel.

According to the 2000 Census, approximately 70% of the households located within these TAZs own one or more vehicles, while the journey-to-work mode split for automobiles is 77%. Within this area of Lynn, approximately 20,372 people 16 years of age or older are currently in the workforce or actively seeking employment, while 14,662 are either retired, unable to work, or are chronically unemployed and have ceased seeking employment. Based upon these variables, the unemployment rate as reflected in the 2000 Census ranges from 2.9 to 10.3% in these TAZs in Lynn. The major transportation needs in this community include:

- Better commuter rail service to serve non-commuter trips.
- Extension of the Blue Line to Lynn.
- MBTA Lynn bus garage on Western Avenue is a regional transportation burden incurred by the community.
- Multi-lingual transportation information

Quincy

The neighborhoods in Quincy that comprise the Environmental Justice Community of Concern encompass traffic analysis zones (TAZs) 436 and 437. This area extends from Quincy Center in the south to the community north of Broad Meadow. Over 5,700 people live in these neighborhoods, over 14% of whom are minorities. The median income within the individual traffic analysis zones range from $26,907 to $32,647. The population in these TAZs is shown in Table B-14.

Quincy Center Station is a regional hub for commuter rail, the Red Line and several bus lines. The station is accessible to all persons and has 872 onsite parking spaces 16 of those are fully accessible.

TABLE B-13
Population Characteristics by TAZ in Lynn

TAZ	Population	Minority	Minority %	Median Income	% of Regional Median Income
303	255	137	53.73%	$18,489	33.13%
304	6,060	2,180	35.97%	$24,453	43.82%
305	6,681	2,194	32.84%	$36,474	65.37%
307	6,823	4,227	61.95%	$22,699	40.68%
308	8,450	5,690	67.34%	$23,372	41.89%
309	7,239	3,922	54.18%	$31,597	56.63%
311	4,739	2,433	51.34%	$31,597	56.63%
313	6,203	3,679	59.31%	$30,726	55.06%

The Middleborough/Lakeville and Plymouth/ Kingston commuter rail lines stop at the Quincy Center Station. Round trip fare to Zone 8 costs $10.00; while fare to downtown Boston is $5.00 roundtrip. Inbound service on the Middleborough/Lakeville has twelve trains stopping at Quincy Center (6:06 A.M. to 10:05 P.M.) and twelve outbound trains (6:52 A.M. to 10:41 P.M.). Inbound service on the Plymouth/ Kingston line stops at Quincy Center two times in the morning (6:13 A.M. and 7:51 A.M.); three trains stop with outbound service one in the morning (9:01 A.M.) and two in the evening (5:02 P.M. and 5:41 P.M.).

The Red Line stops at Quincy Center. Roundtrip fare on the MBTA's rapid transit system is $4.00 from Quincy Center. The Red Line operates from 5:20 A.M. to 12:15 A.M. Quincy Center is also a terminus for many bus lines:

210 - North Quincy Station or Fields Corner Station

211 - Squantum via Montclair and North Quincy

212 - North Quincy Station via Billings

214 - Germantown via Sea Street and Oceanview

215 - Ashmont Station via West Quincy

216 - Houghs Neck via Sea Street

220/221/222- Hingham, Fort Point or East Weymouth via Fore River Bridge and Old Hingham Center

225 - Weymouth Landing via Quincy Avenue and Shaw Street

230 - Montello Commuter Rail Station via Holbrook

236 - South Shore Plaza via East Braintree

245 - Mattapan Station via Quincy Hospital

Roundtrip fare on the bus system is $1.50.

According to the 2000 Census, approximately 69% of the households located within these TAZs own one or more vehicles, while the journey-to-work mode split for automobiles is 75%. Within this area of Quincy, approximately 2,261 people 16 years of age or older are currently in the workforce or actively seeking employment, while 2,893 are either retired, unable to work, or are chronically unemployed and have ceased seeking employment. Based upon these variables, the unemployment rate as reflected in the 2000 Census ranges from 0.9% to 2.4% in these TAZs in Quincy.

Community representatives report that while the majority of those employed use private automobiles, a significant number of residents use public transportation, particularly subway, to get to work and other destinations. TAZ 437 is well served by bus routes that connect to Quincy Center and the MBTA Red Line station there. TAZ 436 is within the downtown development area and accessible to bus routes and the subway. The city itself is served by a number of bus routes which enable residents to reach destinations all over the city.

Planned transportation improvements of broad concern to the two Environmental Justice neighborhoods of concern are: the Quincy Center Concourse, Phase 2 project and the Burgin Parkway Interchange project. Specific impacts of these projects will be identified as plans progress, but may include impacts on traffic flow and volume, air quality, parking, and pedestrian routes.

TABLE B-14
Population Characteristics by TAZ in Quincy

TAZ	Population	Minority	Minority %	Median Income	% of Regional Median Income
436	1,411	313	22.18%	$ 32,647	58.51%
437	4,367	474	10.85%	$ 26,907	48.22%

Revere

The neighborhood in Revere that comprises the Environmental Justice Community of Concern encompasses traffic analysis zone (TAZ) 210. This is the Shirley Avenue area extending from the Revere city line in the south. The Blue Line and state Route 1A define the eastern and western boundaries respectively. Over 8,300 people live in this neighborhood, over 50% of whom are minorities. The median income in this traffic analysis zone is $30,028. The population in this TAZ is shown in Table B-15.

Four stations of the MBTA's Blue Line serve this area of Revere. Each station is accessible and provides parking for bicycles. Onsite parking is available at Suffolk Downs (110 spaces, 4 accessible spaces), Beachmont (430 spaces, 6 accessible spaces) and Wonderland (1257 spaces, 18 accessible spaces). Roundtrip fare on the Blue Line is $2.00. The northern terminus of the Blue Line, Wonderland Station, also acts as a bus hub with service to:

110 - Wellington Station

116/117 - Maverick Station via Revere Street

411 - Malden Center Station to Jack Satter House via Granada Highlands

424W - Eastern Avenue and Essex Street to Haymarket Station, Downtown Boston

426W - Central Square, Lynn to Haymarket Station via Cliftondale

441W - Marblehead to Downtown Crossing Boston

442W - Marblehead to Haymarket, Downtown Boston

448 - Marblehead to Haymarket, Downtown Boston

449 - Marblehead to Haymarket, Downtown Boston

450W - Eastern Avenue and Essex Street to Haymarket Station, Downtown Boston

455W - Salem Depot to Haymarket via Central Square, Lynn

Other bus lines serving the area are:

119 - Northgate to Beachmont Station via Revere Center

120 - Orient Heights Station to Maverick Station via Bennington Street

Roundtrip fare on the bus system is $1.50.

According to the 2000 Census, approximately 69% of the households located within this TAZ own one or more vehicles, while the journey-to-work mode split for automobiles is 64%. Within this area of Revere, approximately 3,678 people 16 years of age or older are currently in the workforce or actively seeking employment, while 2,636 are either retired, unable to work, or are chronically unemployed and have ceased seeking employment. Based upon these variables, the unemployment rate as reflected in the 2000 Census is 9.0% in this TAZ in Revere. The major transportation needs include:

- Improved bus service (frequency)
- Fare discounts
- Connections to Lynn and the North Shore

Salem

The neighborhood in Salem that comprises the Environmental Justice Community of Concern encompasses traffic analysis zone (TAZ) 455. This area extends from east of Lafayette Street (Rte. 1A), north of Leavitt Street, south of Essex

TABLE B-15
Population Characteristics by TAZ in Revere

TAZ	Population	Minority	Minority %	Median Income	% of Regional Median Income
210	8,308	4,154	50.00%	$30,028	53.81%

Street and west of Hardy Street. Over 3,800 people live in this neighborhood, about 58% of whom are minorities. The median income in this traffic analysis zone is $29,732. The population in this TAZ is shown in Table B-16.

This area of Salem is served by the Rockport/Newburyport commuter rail line. The station is handicapped accessible and includes a 340-space parking garage, 8 spaces of which are reserved for persons with disabilities. Inbound service operates from 5:43 AM to 11:24 PM, while outbound service runs from 6:54 AM to 12:38 AM. The roundtrip fare within Zone 3 is $6.00, while the maximum interzone fare (to the northern termini) is $10.00 roundtrip.

Roundtrip fare on the bus system is $1.50. All bus lines serving this TAZ have a terminus at the Salem commuter rail station. From there, the lines go to:

450 Haymarket

451 North Beverly commuter rail station

455 Lynn commuter rail station

456 Lynn commuter rail station

459 Downtown Boston via Logan Airport

465 North Shore Mall and Danvers Square

468 Danvers Square

Salem is not served by a rapid transit line. The principal roadways serving this area of Salem are Route 114 and Route 1A.

According to the 2000 Census, approximately 76% of the households located within this TAZ own one or more vehicles, while the journey-to-work mode split for automobiles is 77%. Within this area of Salem, approximately 1,667 people 16 years of age or older are currently in the workforce or actively seeking employment, while 1,177 are either retired, unable to work, or are chronically unemployed and have ceased seeking employment. Based upon these variables, the unemployment rate as reflected in the 2000 Census is 6.7% in this TAZ in Salem.

Commuter rail does not meet the needs of the environmental justice community. Several planned projects (the South Salem garage and the Extension of the Blue Line to Lynn or Salem) will impact the environmental justice community without providing large benefits. Roadway projects may simply cause an increase in traffic. People in the minority community walk, use taxis, or carpool. The MBTA has re-routed several buses (based on the 1990 census) to better serve the minority community. There was a Welfare to Work program that served 15 people but was terminated in 2001.

Residents work primarily in hospitals or in the service industry in Salem, Beverly, or Peabody. Boston is not an employment base for many of the residents of the environmental justice community of Salem. Therefore focusing resources on radial service to and from downtown Boston does not serve this community. Furthermore, work schedules of low-income workers usually do not correspond to the traditional nine-to-five commuting hours, therefore the addition of off-peak service would help to serve the needs of this community to a greater degree than expansion of service. Improved connections should include locations in Salem, Beverly, Peabody, and the Lynn campus of the North Shore Community College.

Planned transportation improvements of concern to the community are:

- Expansion of parking garage at Salem Station
- Extension of Blue Line to Salem
- Improvements to Boston Street and Bridge Street

TABLE B-16
Population Characteristics by TAZ in Salem

TAZ	Population	Minority	Minority %	Median Income	% of Region Median Incon
455	3,871	2,240	57.87%	$29,732	53.28%

Somerville

The neighborhoods in Somerville that comprise the Environmental Justice Community of Concern encompass traffic analysis zones (TAZs) 242, 243, and 245. This area is bounded by I-93 in the east, the Cambridge city border on the south, Union Square in the west and Broadway in the north. Over 15,000 people live in these neighborhoods, over 40% of whom are minorities. The median income within the individual traffic analysis zones range from $34,466 to $37,036. The population in these TAZs is shown in Table B-17.

The Sullivan Square Station of the Orange Line serves this area of Somerville. Sullivan Square Station is accessible and has 222 parking spaces (7 accessible spaces). Roundtrip fare on the MBTA's rapid transit system is $2.00. Sullivan Square Station also serves a hub for bus service. Roundtrip fare on the bus system is $1.50. From Sullivan Square, buses go to:

CT2 - Ruggles Station via Kendall/M.I.T.

86 - Cleveland Circle via Harvard/Johnson Gate

89 - Clarendon Hill via Broadway

90 - Davis Square to Wellington Station

91 - Central Square, Cambridge via Washington Street

92 - Assembly Square Mall to Downtown Boston

93 - Downtown Boston via Bunker Hill Street and Haymarket

95 - West Medford via Mystic Avenue

101 - Malden Center Station via Salem Street, Main Street and Broadway

104/109 - Malden Center Station via Broadway Linden Square and Glendale Square

105 - Malden Center Station via Newland Street Housing

Other buses serving this section of Somerville are:

80 - Arlington Center to Lechmere Station via Medford Hills

85 - Spring Hill to Kendall/M.I.T. Station via Summer Street and Union Square

87 - Arlington Center or Clarendon Hill to Lechmere Station

88 - Clarendon Hill to Lechmere Station via Highland Avenue

According to the 2000 Census, approximately 71% of the households located within these TAZs own one or more vehicles, while the journey-to-work mode split for automobiles is 62%. Within this area of Somerville, approximately 8,295 people 16 years of age or older are currently in the workforce or actively seeking employment, while 4,474 are either retired, unable to work, or are chronically unemployed and have ceased seeking employment. Based upon these variables, the unemployment rate as reflected in the 2000 Census ranges from 3.1% to 3.5% in these TAZs in Somerville.

Transportation needs and burdens include:

- Interstate 93 and four commuter rail lines pass through the community without providing access to their service.

TABLE B-17
Population Characteristics by TAZ in Somerville

TAZ	Population	Minority	Minority %	Median Income	% of Regional Median Income
242	2,066	815	39.45%	$37,036	66.37%
243	8,881	4,232	47.65%	$36,477	65.37%
245	4,336	1,075	24.79%	$34,466	61.77%

- Congestion on local streets, especially along Route 28.
- Sensitivity to local languages in outreach efforts.
- The community has high transit usage despite the lack of rapid transit serving the area around Union Square.
- Additional service such as radial bus connections to employment centers.
- More off-peak bus service
- Protection for low-cost housing stocks as a precursor to additional transit investment.

Proposed Environmental Justice Methodology For the 2003 Regional Transportation Plan

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1.0 Background

In response to the Boston MPO's 2000-2025 Update to its Regional Transportation Plan the Federal Highway Administration (FHWA) and the Federal Transit Agency (FTA) requested the MPO perform an environmental justice assessment of the region. The focus of this analysis is to determine if low-income and minority communities are being equitably served by the current and proposed future transportation system in the Regional Plan. In order to answer this question the MPO needs to first identify what inequities currently exist in the transportation system and then identify the projects that can help minimize or eliminate them. The 2003 Regional Transportation Plan will use the current-state-of-the-practice methodologies as recommended by the FHWA and the FTA to comply with this request The CTPS *Regional Model* will be used in this analysis. The environmental justice assessment involves seven steps.

1. Identify the *target populations* in the MPO that match the MPO definition of low-income and minority communities.
2. Determine what level of *geography* the results will be presented in.
3. Define the *modes* that will be used in the analysis.
4. Examine the relative *mobility* characteristics of the target areas within a scenario and between different scenarios at a systems-level.
5. Analyze the *accessibility* of target areas to selected destination types within a scenario and between different scenarios at a systems-level.
6. Develop *performance level* measures for quality of service for all the transit modes in order to determine what disparities exist between the target areas and the rest of the region or sub-regions for the base year.

This memorandum will focus on the methodology being used to perform steps one through six. Step seven will be explained in more detail in a subsequent memo. The proposed methodology described in this paper will identify key points for the analysis as well as point out possible alternative methodology that the committee may want to consider.

2.0 Regional Model

The regional travel model set that is being used for the Regional Transportation Plan is based on procedures and data that have evolved over many years at the CTPS. The model set is of the same type as those used in most large urban areas in North America. It uses the best component models, networks and input data available at CTPS at this time. The model set is used to simulate existing travel conditions and to forecast future year travel on the entire Eastern Massachusetts transit and highway system. As such, it contains all the MBTA transit rail and bus lines, commuter boat service and all the private express bus carriers. In the highway system, all express highways and principle arterials and many minor arterial and local roadways are included. The transit and highway components combined, create the transportation network used in the model.

The model covers the entire Eastern Massachusetts region consisting of 164 towns and cities. It simulates the modes and routes and magnitude of trips that are made in the modeled area. Population, employment, number of households, auto ownership, highway and transit levels of service, downtown parking costs, auto operating costs and transit fares are some of the most important inputs that are used in applying the model to a real world situation. These inputs are constantly updated so that the model set simulates current travel patterns with reasonable accuracy.

All of the analysis using the Regional Model will be done using traffic analysis zones (TAZ's). A TAZ is a geographic area that consists of one or more census blocks, block groups, or census tracts. Their main purpose is to provide a unit of geography will allow similar number of trips to be assigned accurately onto the transportation network.

The CTPS travel model can produce several important statistics related to the region's transportation system. Some of them are listed below.

- Travel times from an origin to a destination by mode of travel.
  Note: Travel time can be measured in real time or weighted to a value based on what people perceive. All of the analysis described in this memo proposes to look at only real travel time measures.
- Average daily transit ridership by transit sub modes.
- Average mode split by geographic region.
- Average trip length for transit and auto trips.
- Total vehicle miles and vehicle hours of travel, made by all vehicles on a typical weekday in the entire Eastern Massachusetts region and sub-regions.
- Average speed of traffic in the region.
- Daily traffic volumes on major freeways, expressways and arterials.
- Volume to Capacity ratios on major freeways, expressways and arterials.
- Amount of air pollution produced by the autos, locomotives and buses.
- Total number of daily trips made by auto and transit in the region.

These outputs will be generated for different time periods, forecast year no-build and build scenarios. The results will be presented on a daily basis. They will form the basis for the Mobility, Accessibility, & Equity Analyses discussed later in this memorandum.

3.0 Target Populations

In order to help identify what the target populations should be and where they are located, the Environmental Justice Committee (EJC) used census data and personal insight in the criteria development. The populations initially considered were low income, non-English speaking, and minority population. Based on discussion within the EJC, low-income and minority populations were separated out for the study using the following definition.

Low-income target areas are defined as those with income less then 75% of the MPO median income. Minority population target areas were defines as

populations with more than 21.4% of the community total. Statistical profiles, insight from EJ members, and suggestions from the CTPS can help perfect this list.

The following terminology will be used to describe the population and areas being studied in this memo.

- Target populations - includes both low-income and minority populations
- Target groups – represents either the low-income or the minority population
- Target areas – defines all of the areas that have a given target group
- Target corridors/clusters – identifies groups of target zones
- Target zones – identifies the zones that have either low-income or minority populations located in them
- Target geography – This identifies the smallest level of geography used to determine what target populations are included in what target zones

4.0 Geography

This step will focus on how the data will be aggregated for the analysis. This aggregation will be based on TAZ's. Every targeted population will be identified with the TAZ that it is located in. For the mobility, accessibility, and equity analysis several key points relating to aggregation of TAZ's need to be considered.

- The analysis will be performed for the 101 communities within the Boston MPO Region, which is a subset of the 164 cities and towns in the modeled area.
  Issue: Should we look at destinations in the accessibility analysis outside of the MPO?
- Target area locations won't change in the future year.
- The target areas will be grouped together within a scenario in order to develop the measures for the system-level analysis of mobility, accessibility, and equity; then these results will be compared with the build scenarios.
- To take into account the urban & suburban characteristics of the regions the MPO will be split geographically into two areas that take these characteristics into account.
  Note: One possible definition of urban & suburban could be to call the inner core urban and all of the other sub-regions in the MPO suburban.
- Target groups can be examined using target areas, target corridors, and target zone as units of analysis.
- A corridor/cluster level analysis will be performed if necessary to examine impacts on a limited number of selected groupings of TAZ's that the EJ C may decide are important to look at. The corridor/cluster will be used to examine homogenous areas with the MPO.
  Note: A neighborhood like Roxbury that is made up of several TAZ's could be looked at.
- An analysis of geography of target populations within a scenario and between different scenarios.

5.0 Modes

The regional model allows us to examine several different modes of transportation. The two these analysis will focus on are the auto and transit modes This methodology proposes that for each scenario we will look at the average auto times, average transit times, and average costs inherent in the modeling process incurred from a TAZ to the following:

- Within a scenario & between scenarios
- For the Regional Model study area
- By MPO region
- By urban and suburban areas
- By target areas
- For selected target corridors/clusters
- For selected target zones

6.0 Mobility Analysis

Mobility refers to the ease of movement of people, goods, and services across the region. The mobility analysis involves two levels. The first involves presenting and comparing system-wide statistics related to the region's transportation system, several of which are listed below.

- Average daily transit ridership by transit sub-modes.
- Average weekday station boardings.
- Average mode split by geographic region.
- Average trip length for transit and auto trips.
- Total vehicle miles and vehicle hours of travel, made by all vehicles on a typical weekday in the entire Eastern Massachusetts region and sub-regions.
- Average speed of traffic in the region .
- Daily traffic volumes on major freeways, expressways and arterials.
- Volume to Capacity ratios on major freeways, expressways and arterials.
- Amount of air pollution produced by the automobile traffic, trains, and buses.
- Total number of daily trips made by auto and transit in the region.

The second part of the mobility analysis will look at the average travel time and distances by mode. For the no-build scenario, several comparisons can be made within it based on the target group, geography, and by mode. The average travel time by mode for a target area can then be compared with the following average travel times.

- Regional Model Study Area
- MPO Region
- Urban and Suburban Areas
- Target areas & groups
- Selected target corridors/clusters
- Selected target zones

These comparisons are not independent of one-another but can be used together to refine the process. Target corridors/clusters or target zones can be compared within an urban / suburban geographic breakdown is one example.

The changes in travel time for each one of these dimensions within a scenario can be used a benchmark to compare with the build scenarios. A comparison can be made using anyone or a combination of the following:

- Statistical comparisons of average travel times
- Absolute differences between average travel times
- Relative differences between average travel times

This breakdown by geography and type of analysis can also be used to compare average trip distances for the target zones.

7.0 Accessibility Analysis

This analysis will quantify the accessibility of the selected origin target zones to selected destination zones. At a minimum, federal requirements ask us to look at destinations consisting of higher educational facilities, employment, and health care facilities. The measures used in this analysis will attempt to quantify the number of facilities available within a pre-determined travel time from any given target zone using the following approach.

Higher educational Facilities

1. Higher educational facilities will be broken down into community colleges, other two-year institutions, and 4-year schools.
2. The model will be used to estimate auto and transit travel times from each selected target zones to all TAZ's in the Modeled Area.
3. The type of educational facility will be weighted in this analysis by its current enrollment in order to reflect the number of educational opportunities that it may have.
4. The total number of educational facilities within 10, 20, 30, or more minutes of each target zone and by mode will be presented for the no-build scenario.
5. This will be repeated for the build scenarios.
6. The enrollment will be weighted by the size of the target group to develop an average number of educational facilities available to that target group.
7. Comparisons within a scenario and between scenarios by mode can be made using this information.

Employment

1. Employment data is available for ten different sectors of the economy. These will be grouped together for (total employment) in this analysis.

Note: It is possible to look at specific types of employment if the EJC feels it is appropriate to group them or focus on only one sector . The types of employment consist of the following:

- Service employment
- Government employment
- Primary education
- Secondary education
- Financial, insurance, & real-estate
- Retail
- Wholesale
- Manufacturing
- Agriculture, mining, & construction
- Transportation, communications, & utilities

2. The model will be used to estimate auto and transit travel times from each selected target zones to all TAZ's in the Regional Modeled Study Area.
3. The total employment within 10, 20, 30, or more minutes of each target zone for each zone and by mode will be presented for the no-build scenario.
4. The employment will be weighted by the size of the target group to develop an average number of employment opportunities available to that target group.
5. This will be repeated for the build scenarios and compared with the no-build.
6. Comparisons within a scenario and between scenarios by mode can be made using this information.

Health Care Facilities

1. Locations of health care facilities will be based on what on the best available information is at the time of the analysis.
2. The model will be used to estimate auto and transit travel times from each selected target zones to all TAZ's in the Regional Modeled Study Area.
3. The total numbers of health care facilities within 10, 20, 30, or more minutes of each target zone and by mode will be presented for the no-build scenario.
4. This will be repeated for the build scenarios.
5. The number of health care facilities will be weighted by the size of the target group to develop an average number of health care facilities available to that target group.
6. Comparisons within a scenario and between scenarios by mode can be made using this information.

Memorandum

To: Environmental Justice Committee
From: Pam Wolfe
Date: March 25, 2003 (Revised July 18)

Re: **Environmental Justice Community Transportation Needs Assessment**
Common Themes – March Update

Community members of the MPO's Environmental Justice Committee have provided brief descriptions of the communities they represent and summaries of their transportation needs and issues of concern. In spite of geographic differences, there were common themes expressed.

The low income and minority communities often share:

- **Mobility-dependence** – A relatively high percentage of residents do not have automobiles and are either dependent on transit, if their community is served, or on carpools, vanpools, or taxis.
- **Language and cultural diversity** – For many residents in low income or minority communities, English is a second language and many are not fluent and do not read English. This presents great difficulties for use of our English-based transit system.
- **Poor air quality** – High traffic volumes through the communities (including diesel trucks and buses) and severe congestion adds pollution which is a health problem. Some communities report higher than average asthma rate.
- **Concerns about possible gentrification** – Several communities believe that transportation improvements will result in housing cost impacts that may, if not controlled, displace current residents.
- **Concerns about major construction impacts**.

Frequently identified transportation needs include:

- **Service improvements for existing transit** – Safety, state of repair, age of fleet, cleanliness, access, station improvements, connections, schedule and arrival information and other ITS services, schedule adherence, bus shelters, over-crowding, and frequency of service were highlighted for improvement. Bus schedules do not always meet shift-schedule needs (including late night, early morning and weekend service.) Fare discounts should be available for low-income patrons.
- **Transportation to de-centralized destinations** - Transit doesn't meet residents' destination-needs. Access to some destinations (located in neighboring communities, in manufacturing and service locations along highways or in industrial parks; or to those that require trips to the central core and transfers to a radial line) is awkward and difficult. Boston is not always the main employment destination. Residents' jobs are often spread out in suburban areas and must be accessed by highway. New and more flexible bus services should be created to meet these needs. Communities closer

to Boston maintain Boston as the main destination, however east-west services should be improved.

- **Reduction of traffic impacts** – Highway through-traffic creates problems and traffic flow should be improved/reduced. Highways have created negative visual impacts and have divided communities.

MEMORANDUM

Date: July 15, 2003

To: Transportation Planning and Programming Committee

From: Anne McGahan, Manager, Transportation Plan
Scott Peterson and Pam Wolfe, Co-Managers, Environmental Justice Assessment

Re: Recommendations of the Environmental Justice Committee to the MPO

The Environmental Justice Committee (committee) has met frequently since its organization in spring 2002 to discuss and provide input on the Addendum to the 2000 Plan Update, the system-level assessment work scope, analysis, and identification of transportation needs. Most recently, the committee reached consensus on a series of recommendations for the transit portion of the 2004-2025 Regional Transportation Plan. The committee will continue discussions, including examination of highway projects, and will make additional recommendations during the public comment period.

Recommended Projects

The committee supports many of the transit projects already included in the two alternative 2025 Build Scenarios. Members gave the Arborway Restoration, Fairmount Branch Improvements, Urban Ring Phases 1&2, 100 Additional Buses to Improve Service on Existing Routes, and Assembly Square Orange Line Station projects a High rating. They rated the Red Line/Blue Line Connector, Medford Hillside Green Line, and North Shore Transit Improvements* (including the committee recommendation of extending service to Salem) projects a Medium rating.

Members gave several projects Low ratings: the Russia Wharf Ferry Terminal, Old Colony/Greenbush Commuter Rail, and Silver Line Phase 3 projects. Members didn't think there were benefits for environmental justice target neighborhoods associated with these projects.

Members support Light Rail from Dudley to Park Street replacing the existing bus rapid transit service. They gave this service a High rating and asked that it be modeled in a build scenario and also be included in the recommended plan. They suggest that implementing this project would replace the existing Silver Line service, but not preclude construction of Silver Line 3.

* The MBTA is looking at a number of options as part of the North Shore Major Investment Study.

Other Recommendations

The Committee agreed on the following additional recommendations for transit projects:

- Expedite implementation of the 100 Additional Buses project. The current schedule which shows implementation between 2010-2015 should be moved forward.
- Use DMUs on the Fairmount Branch instead of diesel locomotives.
- Continue developing the Suburban Mobility program. Members think that this project, now included as a planning project, is very important as a likely way to address transportation needs in Target suburban neighborhoods.
- Flex highway funds to transit. Members feel that flexing is a way to make more funds available for the transit projects they support.

Process Improvement

While appreciating the scope and accomplishments of the system-level analysis, some committee members expressed their concerns that the current process did not adequately identify projects that meet their communities' transportation needs or their expectations for a productive process. They would like to be involved in a substantive way earlier in the certification documents' development. Members asked that they be involved in designing improvements for the environmental justice process.

MEMORANDUM

TO: **Transportation Planning and Programming Committee** **July 18, 2003**
Boston, MPO

FROM: **Scott Peterson, Planner**
CTPS

RE: **Preliminary Environmental Justice Results for the 2004-2025 Regional Transportation Plan: Comparison of the No-Build with the Build 1 and Build 2 Scenarios**

Environmental Justice Transportation System-Level Analysis

The Boston MPO is conducting a system-level transportation analysis to learn whether there are gaps or inequities in the existing transportation system and to understand how well the recommended projects for the Regional Transportation Plan (Plan) address the needs of the region's target populations and neighborhoods in the future.

The target populations and neighborhoods consist of:

- Low income populations
- Minority populations
- English as a second language populations
- High percent zero vehicle household populations
- Seventeen target neighborhoods

During discussions with the Environmental Justice Committee in early 2003, concerns were identified relating to mobility, congestion, cut through traffic, air quality, as well as access to schools, health care, and jobs. To respond to these concerns the MPO staff identified several modelable performance measures to assess how each of the issues that the Environmental Justice Committee identified would be implemented in the Plan.

The benefits and burdens of mobility, congestion, and the environment were examined by comparing the target populations with their respective non-target populations within the MPO using predetermined performance measures. This analysis compares populations within a scenario and examined changes between the no-build and build scenarios. The benefits and burdens of access compare changes in target neighborhoods amongst themselves and examines changes between the no-build and build scenarios by target neighborhood.

Performance Measures

Mobility
- Average daily travel time for auto and transit, weighted by trips
- Average daily travel speeds for auto, weighted by trips
- Daily travel time savings

Congestion
- AM peak period vehicle miles of travel in congestion

Cut-through traffic

- Average daily vehicle miles of travel per auto person trips generated at the origin traffic analysis zone

Environmental Concerns
- Density of CO_2 produced by traffic analysis zone

Access to higher education
- Access to two-year higher educational facilities weighed by enrollment
- Access to four-year higher educational facilities weighed by enrollment

Access to health care
- Access to extended care facilities weighted by number of beds
- Access to health care facilities

Access to employment
- Access to service employment opportunities
- Access to retail employment opportunities
- Access to manufacturing employment opportunities
- Access to transportation, communication, & public utility employment opportunities

Summary of Results

An analysis of the model results for First and Second Build scenarios showed that all of the target populations were improving relative to the No-build scenario in mobility, congestion, and environmental concerns. Transit showed greater improvements than the auto mode. There was little difference in the magnitude of improvements experienced by target and non-targeted populations using the auto mode. Target populations using transit experienced more improvements than the non-targeted populations. The accessibility analysis showed a great deal of variability by neighborhood with some target neighborhoods showing improvement in access while others showed little to no gain in access to education, healthcare, and jobs.

Analysis of the Build 1 Scenario Produced the Following Representative Results

Average daily travel times weighted by trips:

- All target populations and non-target populations experienced decreases in average daily auto travel time relative to the no-build scenario ranging from –1% to -3%.
- There was no apparent disparity in percent reductions in auto travel time between the different populations within this scenario.
- All populations experienced decreases in average daily transit travel time relative to the no-build scenario ranging from –1% to -3%.
- The target populations, namely minority and low-income populations, experienced a higher percent reduction in transit travel time than the non-target populations within this scenario.

AM peak-period congested vehicle miles of travel (Congestion is defined as a volume to capacity ratio of greater than 0.75 on roadways):
- All target populations and non-target populations experienced decreases in congested vehicle miles of travel ranging from -4% to –9%.
- The target populations experienced a greater percent reduction than the non-target populations with the low-income population having the largest reduction.

Density of CO produced on roadways by automobiles according to traffic analysis zone:
- All populations experienced decreases in carbon monoxide emissions ranging from –1% to –6%.
- The target populations experienced a greater reduction than the non-target populations with low-income population having the largest reduction.

Access to two-year higher educational opportunities weighted by enrollment and using a threshold of 20 minutes for auto and 40 minutes by transit:

- The majority of the target neighborhoods show little to no change in enrollment opportunities while the target neighborhoods in Lynn, Salem, Dorchester, Revere, and Somerville show improved access for auto and transit.
- Lynn experiences the largest increase in enrollment opportunities with an 18% increase using the auto mode and 180% increase using the transit mode.

Access to extend care medical facilities weighted by number of beds and using a threshold of 20 minutes for auto and 40 minutes by transit:

- The majority of the target neighborhoods show little to no change in beds available while the target neighborhoods in Lynn, Salem, Dorchester, and Somerville show slight increases for auto and transit.
- Lynn experiences the largest increase in beds available with 12% for the auto mode and an increase over 100% using the transit mode.

Access to retail employment opportunities using a threshold of 20 minutes for auto and 40 minutes by transit:

- All target neighborhoods experience an increase in retail job opportunities ranging from 1% to 33% using the auto mode.
- Lynn experiences the largest increase in retail job opportunities via the auto mode with a 33% increase.
- All target neighborhoods experience an increase in retail job opportunities ranging from 1% to 60% using the transit mode.
- Lynn experiences the largest increase in retail job opportunities via the transit mode with a 60% increase.
- The North Shore target neighborhoods, Dorchester, Somerville, and South Boston see the largest increase in retail jobs via the auto and transit modes.

Analysis of the Build 2 Scenario Produced the Following Representative Results

Average daily travel times weighted by trips:

- All populations of concern and the comparison populations experienced decreases in average daily auto travel time relative to the no-build scenario ranging from –3% to -1%.
- There was no apparent disparity in percent reductions in auto travel time between the different populations within this scenario.
- All populations experienced decreases in average daily transit travel time relative to the no-build scenario ranging from –3% to -1%.

AM peak-period congested vehicle miles of travel (Congestion is defined as a volume to capacity ratio of greater than 0.75 on roadways):

- All populations experienced decreases in congested vehicle miles of travel ranging from -4% to –8%.
- The target populations experienced a greater percent reduction than the non-target populations with the low-income population having the greatest reduction.

Density of CO produced on roadways by automobiles by traffic analysis zone

- All populations experienced decreases in vehicle miles of travel ranging from –1% to –5%.
- The target populations experienced a larger reduction than the non-target populations with low-income population having the largest reduction.

Access to two-year higher educational opportunities weighted by enrollment and using a threshold of 20 minutes for auto and 40 minutes by transit:

- The majority of the target neighborhoods show little to no change in enrollment opportunities while the target neighborhoods in Lynn, Salem, Dorchester, Revere, and Somerville, show increases for auto and transit.
- Lynn experiences the largest increase in enrollment opportunities with an 18% increase using the auto mode and 180% increase using the transit mode.

Access to retail employment opportunities using a threshold of 20 minutes for auto and 40 minutes by transit:

- All target neighborhoods experience an increase in retail job opportunities ranging from 1% to 33% using the auto mode.
- Lynn experiences the largest increase in retail job opportunities via the auto mode with a 33% increase.
- All target neighborhoods experience an increase in retail job opportunities ranging from 1% to 60% using the transit mode.
- Lynn experiences the largest increase in retail job opportunities via the transit mode with a 60% increase.
- The North Shore target neighborhoods, Dorchester, Somerville, and the South End see the largest increase retail jobs via the auto and transit modes.

SP/sp

cc: Vijay Mahal, CTPS
Cathy Lewis, CTPS
Karl Quackenbush, CTPS

MEMORANDUM

TO: **Scott Peterson**

FROM: **Thomas J. Humphrey**

RE: **Analysis of MBTA Bus Network Based on Service Measures in the Environmental Justice Section of the Regional Transportation Plan**

I. Introduction

As requested, I have reviewed the tables in appendix A (Environmental Justice) of the Boston Region MPO Transportation Plan 2002 Update to try to identify areas where transit service improvements would have the greatest positive impact under the service measures used in these tables. Many of the routes that score poorly under these measures are scattered throughout the region. Some of these include only short segments within low-income or minority neighborhoods under the definitions used in the Transportation Plan. The one corridor with a large concentration of heavily patronized bus routes primarily serving minority and low-income areas is that mid-way between the Orange and Red Lines, from Mattapan Square on the south to Dudley Square and Ruggles Station on the north. More specific findings are presented below. All tables cited are in the 2002 Plan Update.

ll. Preliminary Screening Process

Table A-1A in the Transportation Plan 2002 Update classifies 170 MBTA bus routes according to whether or not they serve traffic zones with concentrations of minority or low-income residents. Based on the definitions used, 41 routes are identified as serving both low income and minority populations, 34 as serving minority but not low-income areas, 3 as serving non-minority low-income populations, and 92 as not serving concentrations of either minorities or low income residents. For purposes of the present analysis, the routes of most interest are those classified as both minority and low income, followed by those classified as low-income only. Lacking other information, residents of minority neighborhoods that are not also classified low-income are presumably less transit-dependent than residents of low income minority or non-minority neighborhoods. Consequently only the 44 low-income routes, or about one-quarter of the system total, were subjected to more detailed analysis.

III. Service Frequency

The 2002 Plan Update categorizes routes according to four ranges of service frequency. Headways of 15 minutes or under are classified as Very Frequent. Headways of 16 to 30 minutes are Frequent. Those of 31 to 60 minutes are Less Frequent, and those of over 60 minutes are Infrequent. Table A-1A shows average headways for each route for each of four weekday time intervals (A.M. peak, midday, P.M. peak, and evening), plus all-day averages for Saturdays and Sundays.

Frequency alone is not a meaningful measure of adequacy of service. Most MBTA bus routes have lengthy histories (many having evolved from street railway lines that were first established in the 1800s). Over the years, service frequencies have been adjusted to try to match supply and demand. In general, the routes that are most heavily patronized already have the most frequent service, and those with the least service are also least crowded. This should not be construed as an indication that greatly increased frequency on any route will greatly increase ridership. In most cases, routes with infrequent service had more service in the

past, but ridership levels could no longer justify allocation of as great a level of resources to those routes. Therefore, frequency was examined together with vehicle loadings, as discussed below.

It should be noted that the MBTA's Service Delivery Policy Standards call for frequencies of at least every 30 minutes during peak hours and at least every hour during off-peak hours on all routes. This standard is not met on some low-ridership routes, but the proportion of such routes in low-income minority neighborhoods is not greater than that of the system as a whole.

IV. Vehicle Loadings

Description of Measures

Table A-2A in the Transportation Plan 2002 Update shows average vehicle loadings on each route at the maximum load point during the most heavily patronized 30-minute span on a typical weekday. In this table, loads are measured in two ways - Load Factor and Crowd Factor. Load Factor is the ratio of passengers on board at the peak load point to the total number of vehicle seats provided. Crowd Factor is the ratio of passengers on board at the peak load point to the combined seating and standing capacity. Under MBTA service standards, total bus capacity is defined as 140% of seating capacity, but it is possible for an even greater number of people to fit on board.

It should be noted that the results in table A-2A do not reveal anything about how heavily patronized any route is outside of the peak 30 minutes. Some routes have large spikes in demand for reasons such as the start or end of a school day, but others without such ridership sources have more uniform patronage. In most cases, the load measures are averaged over two or more trips in the peak 30 minutes, so individual trips may be even more crowded.

The peak-load figures shown for most routes are based on a one-day observation on a randomly chosen weekday. Although these are assumed to be typical, there are no guarantees that the observations for a particular route depict a usual pattern. Finally, MBTA buses do not all have uniform capacity. In 2002, the number of seats per bus ranged from 31 to 43, with a fleet average of 40.1. The load and crowd factors in table A-2A assumed a seating capacity of 40 and total capacity of 56 per bus on all routes.

General Findings

Of the 41 bus routes serving both minority and low-income populations, 26 (63%) were found to have more passengers than seats at the maximum load point in the peak 30 minutes, including seven (17%) with maximum loads above service-standard capacity. All three low-income non-minority routes had maximum loads less than or equal to seating capacity. The figures in the table may understate the number of passengers actually standing at the peak load point on crowded trips, as some standees may block access to or view of empty seats that are not near the door.

Further investigation shows that subsequent to the observations included in Table A-2A, schedule adjustments have been made to relieve the crowding on the trips that had peak ridership in excess of service-standard capacity. Further improvements on these and other routes could still reduce the number of standees.

Dorchester and Roxbury Route Cluster

The 26 minority and low-income bus routes that had standees at the peak load points were distributed among many Boston neighborhoods or other cities and towns. There were few instances of two or more heavily patronized route serving the same area. The main exception to this was found in the sections of Dorchester and Roxbury between the Orange and Red Lines, from Mattapan Square on the south to Dudley Square and Ruggles Station on the north. This area has numerous heavily patronized local bus routes

providing feeder service to the Orange Line, and serving high concentrations of minority low-income residents. This is the same general area that would be served by a Silver Line extension from Dudley to Mattapan. The most heavily patronized of the present routes are:

Route 22 - Ashmont Station to Ruggles Station via Talbot Avenue
Route 23 - Ashmont Station to Ruggles Station via Washington Street
Route 28 - Mattapan Station to Ruggles Station via Dudley Station
Route 29 - Mattapan Station to Jackson Square Station via Seaver Street
Route 44 - Jackson Square Station to Ruggles Station via Seaver Street
Route 45 - Franklin Park Zoo to Ruggles Station

The most recent available ridechecks on these six routes showed a combined total of 43,000 riders a day, or about 21,500 in each direction. According to table A-2A, none of these routes had peak loads in excess of service standard capacity, but all of them had some standees during at least the busiest 30 minutes of the day. On Routes 23, 28, 29, and 44, the heaviest loads occurred during the A.M. peak inbound. On Route 22 the heaviest loads were during the P.M. peak outbound, and on Route 45 outbound trips during the afternoon school peak had the heaviest loads.

Routes 22, 23, and 28 alone accounted for 77% of the combined ridership. These routes also had the most service according to table A-1A. All three had headways of under 15 minutes on weekdays in the A.M. peak, midday, and P.M. peak, and 20 minutes in the evening. All three also headways of 15 minutes or less on weekend days, except that Route 23 had a 16-minute Sunday headway. Routes 29, 44, and 45 had weekday peak-period headways of 15 minutes or less, except for a 16-minute A.M. peak headway on Route 29. Off-peak headways on these routes were between 15 and 30 minutes, except that Routes 44 and 45 had 45-minute headways on Sundays and Route 29 had 60-minute midday headways and no Sunday service. It should be noted that all of the street coverage of Route 29 is also served by either Route 28 or Route 22.

Although these six routes serve the same general area of Boston and overlap with each other at several points, each of these routes provides some service that the others do not. The 1995 passenger survey found that most traffic zones from which there were reported trip origins on any of these routes showed origins on only one or two of the six, and only one zone showed origins on as many as three of them. In the zones with origins reported for two routes, all of the reported addresses were either along streets served directly by both of them, or on cross streets between the two.

The survey also showed that only 23% of the inbound riders on these routes transferred to the Orange Line to complete their trips. Transfers to other bus routes were slightly more important, at 27%, but only 6% transferred to bus routes continuing further toward downtown Boston. The greatest number (49%) completed their trips by walking from one of the six bus routes. These findings suggest that the majority of transit users in the neighborhoods served by these six bus routes are making cross-town trips, or trips within these neighborhoods. These riders could benefit most from service quality improvements on existing routes, such as increased frequency and better on-time performance, regardless of other capital improvements that may be instituted.

V. Distribution of Waiting Shelters

Table 5A of the Transportation Plan 2002 Update shows the locations of shelters at MBTA bus stops, by stop name, municipality, and Census tract, but not by route. The list shows a total of 216 shelters, of which 61 (28%) are shown as being within Boston. A more detailed examination shows that six of these shelters are located along the six routes in Dorchester and Roxbury discussed in section IV. Of these, one is near Dudley Square on Routes 23, 28, and 44, one is at Jackson Square on Routes 22, 29, and 45, one is at the outer end of Route 45 at Franklin Park, and the other three are near the middle of Route 44.

The overall figures show that the total number of bus shelters on the MBTA system is very small relative to total route-mileage, regardless of neighborhood categories. More shelters are needed throughout the system, especially at high-ridership stops. (It should be noted that subsequent to completion of the

inventory used in the Transportation Plan, additional shelters have been installed at many locations in Boston as part of the city's "street-furniture" program.)

VI. Comparisons with Commuter Rail

The commuter rail service standard vehicle capacity of 110% of seating (versus 140% of seating on buses) has been cited as an example of inequity between urban and suburban MBTA services. Table A-2A in the Transportation Plan Update does not show the average load factors on commuter rail trains. However, other sources do show that some peak-period commuter rail trains have passenger loads in excess of 110% of total seats. For example, the CTPS 2000 peak-load counts found this to be the case on several trains on the Franklin, Attleboro/Stoughton, Middleborough/Lakeville, and Plymouth/Kingston lines. In addition, some trains that had empty seats in some cars had standees in others. The average length of a commuter rail trip is much longer than that of any local bus trip in the urban core, so if a commuter rail passenger is forced to stand, the average time spent standing is much longer than most bus passengers would have to stand. A bus loaded to 140% of seating capacity would have 16 standees, but the number of standees on many individual commuter rail trains greatly exceeds this.

As discussed in section III, the most heavily patronized bus routes have very frequent service, defined as every 15 minutes or less. At present, none of the commuter rail lines has average peak-period headways as short as 15 minutes, although there are some instances of trains scheduled less than 15 minutes apart. At most stations, the average interval between peak-period trains is between 30 and 45 minutes. The disparity between off-peak headways on commuter rail and local buses is even greater.

TJH/tjh

MEMORANDUM

TO: Dennis Dizoglio, MPO Chairman

DATE: July 15, 2003

FROM: Vijay Mahal and Bill Kuttner

RE: Ridership Comparison of Silver Line Phase III and Washington Street Light Rail Transit

Responding to a request from the Environmental Justice Committee, the Working Committee of the Transportation Planning and Programming Committee directed CTPS staff to perform a comparative ridership analysis of the Silver Line Phase III with a Light Rail Transit (LRT) service on Washington Street. The purpose of this memorandum is to document the results of our analysis.

For your convenience and ready reference, a brief project description and service assumptions for the Silver Line Phase III and the Washington Street LRT are provided below.

The Silver Line Phase III project involves building an underground tunnel between New England Medical Center and South Station and providing a through-routed service (one-seat ride) from Dudley Square and Boylston Station to the Seaport area and Logan airport. When complete, the Silver Line corridor would have intermodal connections with the Orange Line at New England Medical Center and Chinatown, Green Line at Boylston, Red Line and Southside commuter rail lines at South Station and Blue Line at Airport Station. As currently envisioned, the Silver Line Phase III would consist of the following services.

Dudley to Boston Marine Industrial Park @ 10-minute headway
Dudley to Boston Convention Center @ 10-minute headway
Dudley to Logan airport @ 10-minute headway
Boylston to Boston Marine Industrial Park @ 10-minute headway
Boylston to World Trade Center @ 10-minute headway
South Station to Logan @ 10-minute headway

The effective headway of the Silver Line on Washington Street would be about 3.5 minutes during the peak periods. In the Phase III tunnel section the effective headway would be about 2 minutes during the peak periods.

The LRT on Washington Street would consist of running a service similar to the Green line from Dudley Square to Park Street Station. The level of service assumed during the peak and off-peak periods is 5 minutes and 7 minutes respectively. Due to capacity constraints in the central subway section, it would not be possible to extend the new LRT service beyond Park Street station and for the same reason, it would not be possible to provide a better frequency of service unless some service reductions are made in the other branches of the Green Line. The stopping pattern assumed for the Washington Street LRT is similar to the current Silver Line Phase I.

Table 1 presents a comparison of ridership forecasts between these two proposed improvements to the Silver line corridor. These forecasts use the most recent demographic and employment projections for 2025 developed by MAPC in May 2003.

In the No Build option, the two Silver Line services are assumed to continue to run independently: the Washington Street service would continue to Downtown Crossing, much as it does today, and the soon-to-open Piers Transitway service, including the Airport Intermodal Transit Connector (AITC), would connect South Station with the Seaport and Logan Airport.

Table 1

Silver Line Corridor

Projected 2025 Ridership

	No Build	Upgrade Washington to LRT	Integrated Silver Line
Piers Transitway + AITC	12,500	12,500	
Washington Street Service	14,750	36,800	
Integrated Silver Line			102,000
Total Over Corridor	27,250	49,300	102,000

The proposed completion of the Silver Line is projected to almost quadruple the ridership throughout the Silver Line corridor to 102,000 daily riders in 2025. The increase in ridership due to Phase III would be about 74,750 (102,000 – 27,250).

Upgrading Washington Street service to LRT would also increase ridership in the Silver Line corridor, even though there would still be two disconnected services. Ridership on the Washington Street segment would more than double. This is attributed primarily to the fact that there would be a more convenient transfer at Park Street to the Red Line and to Green Line trains going towards North Station and Lechmere. There would be no improvement in the Seaport area, so total ridership throughout the corridor would about double.

Seen in this context, it is perfectly reasonable that the integrated Silver Line would result in a quadrupling of corridor ridership. The key transfer to the Red Line would be made at South Station instead of at Park Street in the LRT proposal. While this moves the core service point away from Park Street, South Station is a much larger employment hub than Park Street or Downtown Crossing. The South Station area is undergoing major commercial expansion, while the Park/Downtown Crossing area is largely built out. Finally the growing Seaport District and ever active Logan Airport provide a rich set of destinations for Silver Line patrons who otherwise would remain isolated in the LRT option.

Many of the riders on the Silver Line corridor would be attracted from existing MBTA services, but some would be attracted from the auto mode, a key measure of transit effectiveness. Table 2 summarizes the power of these investment proposals to attract users away from the auto mode.

Table 2

2025 Regional Linked Transit Trips

	Linked Transit Trips	Transit Mode Share
No Build	966,050	7.27%
All recommended projects in Plan (excluding Phase III)	1,040,050	7.82%
All recommended projects in Plan	1,040,450	7.82%

(substituting Phase III with Washington Street LRT)		
All recommended projects in Plan (including Phase III but no Washington Street LRT)	1,045,250	7.86%

In 2025 there are predicted to be about a million linked transit trips (person trips, as opposed to boardings, or "unlinked" trips.) These million linked trips will represent a little over 7% of the region's trips. Completing all the transit improvements outside the Silver Line corridor envisioned in the current draft transportation plan would add almost 74,000 trips and increase the transit mode share about a half a percent to 7.82% of regional trips.

Investing in the Silver Line corridor would further increase transit mode share. The LRT upgrade would attract about 400 trips from auto, whereas the integrated Silver Line would generate about 5,200 new transit users, inching the transit mode share up to 7.86%. While the LRT upgrade would be a popular service, much of its ridership would come from existing local bus and Orange Line users. Most of the 102,000 riders on the integrated Silver Line would also be existing transit users, but 5200 would be new to transit. This is because the Silver Line presents auto users an entirely new set of transit capabilities that are otherwise awkward or non-existent.

In conclusion, a rich set of residential, commercial, and regional destinations are located astride the Silver Line corridor. A major transit investment in any segment of this corridor can be expected to attract new users, as the recent growth in Washington Street ridership after completion of Phase I clearly indicates. The model predicts, and observation of development patterns corroborates, that uniting the current Washington Street and Piers Transitway branches in an integrated Silver Line will attract significantly more riders both from auto as well as other congested transit services than an isolated enhancement of either individual branch would.

APPENDIX

C

UNIVERSE OF PROJECTS

One of the primary outcomes of the Regional Transportation Plan is the development of a list of major capital expansion projects for implementation over the next twenty-one years. For use in selecting these projects, the MPO created a Universe of Projects list identifying all possible projects for selection. The list is in two parts, one for highway projects, the other for transit projects.

The Highway Universe of Projects list is comprised of those projects included in a previously adopted Regional Transportation Plan; projects previously studied and projects now under study or in development; and projects included in comments received during the public outreach process for both the 2000–2025 Plan and this 2004–2025 Plan. The Transit Universe of Projects list was derived from the MBTA's Program for Mass Transportation.

UNIVERSE OF HIGHWAY EXPANSION PROJECTS FOR THE 2025 BUILD SCENARIO[1]

Highway Projects Previously Included in an Adopted Future Build Scenario

Community	Project	Cost
Bedford	Crosby Dr.	$3,500,000
Bedford & Burlington	Middlesex Tpk.	$12,500,000
Beverly to Peabody	Rte. 128 Capacity Improvements	$60,000,000
Boston	Rte. 1A/Boardman St. Grade Separation	$8,500,000
Boston	Rutherford Ave.	$67,800,000
Boston	E. Boston Haul Rd. (Chelsea Truck Route)	$12,000,000
Boston to Newton	Double Stack Initiative	$20,000,000
Burlington	Rte. 3A	$3,000,000
Canton	East/West Connector Rd.	$7,200,000
Canton	I-93/I-95 Interchange	$27,500,000
Canton	I-95 (NB)/Dedham St. Ramp	$3,000,000
Concord	Concord Rotary	$15,000,000
Concord & Lincoln	Rte. 2/Crosby's Corner	$15,000,000
Danvers & Peabody	Rte. 1/114 Corridor Improvements	$40,000,000
Everett, Malden, & Medford	Telecom City Roadways	$13,000,000
Everett, Medford, & Revere	Revere Beach Pkwy.	$80,000,000
Framingham	Rte. 126/Rte. 135 Grade Separation	$50,000,000
Framingham	Rte. 9/Rte. 126 Interchange	$15,000,000
Framingham to Worcester	Double Stack Initiative	$8,000,000
Hanover	Rte. 53	$4,000,000
Hingham & Norwell	Rte. 53/Rte. 228	$2,500,000
Hingham, Rockland, & Weymouth	Naval Air Station Access Improvements	$74,700,000
Hudson & Marlborough	I-495/I-290/Route 85 Interchange	$28,000,000
Lynnfield to Reading	Rte. 128 Capacity Improvements	$50,000,000
Malden & Revere	Rte. 1 Improvements	$33,600,000
Marlborough & Northborough	Boundary St./Goddard Rd. Connection	$2,500,000
Natick to Wellesley	Double Stack Initiative	$20,000,000
Needham & Newton	Needham St. (Highland Ave.)	$6,600,000
Quincy	Quincy Center Concourse, Phase 2	$6,000,000
Quincy	Burgin Pkwy.	$18,000,000
Reading & Wilmington	I-93/Rte. 129 Interchange	$15,000,000
Reading & Woburn	I-93/I-95 Interchange	To be determined
Revere	Mahoney Circle Grade Separation	$25,000,000
Revere	Rte. 1/Rte. 16 Interchange	$3,900,000
Revere	Rte. 1A/Rte. 16 Connection	$39,600,000
Salem	Boston St.	$2,000,000
Salem	Bridge St.	$3,000,000
Somerville	I-93/Mystic Ave. Interchange	$50,000,000
Wellesley to Beverly	Rte. 128 Capacity Improvements	$207,000,000
Weymouth	Rte. 18	$15,000,000
Weymouth to Duxbury	Rte. 3 South Additional Lanes	$180,000,000
Wilmington	I-93/Ballardvale St. Interchange	$15,000,000
Woburn	Boston St. Bridge	$2,000,000

[1] This listing does not include projects from the Base Case or No-Build Scenario or projects that would not normally be included in a regional transportation model.

Highway Projects Previously Studied, Currently under Study, or in Development

Community	Project	Cost[2]
Boston	Fenway Park Highway Improvements	$26,000,000
Boston & Chelsea	Rte. 1A/Chelsea St. Bridge Connection	$34,800,000
Hudson & Marlborough	I-495/I-290/Rte. 85	$25,000,000
Littleton	Rte. 2 Interchange	$10,000,000
Salem	Commercial St./Tremont St.	$500,000
Salem	Essex St. Conversion	$2,000,000

Highway Projects Identified through Planning Efforts[3,4]

Community	Project
Lynnfield, Peabody, & Saugus	Rte. 1 Capacity Improvements
Boston to Revere	Rte. 1A Capacity Improvements
Acton to Lexington	Rte. 2 Capacity Improvements
Arlington & Cambridge	Rte. 2/Rte. 16 Capacity Improvements
Randolph to Raynham	Rte. 24 Capacity Improvements
Boston to Braintree	I-93 Capacity Improvements
Somerville to Woburn	I-93 Capacity Improvements
Canton to Foxborough	I-95 Capacity Improvements
Littleton to Wrentham	I-495 Capacity Improvements

[1] This listing does not include projects from the Base Case or No-Build Scenario or projects that would not normally be included in a regional transportation model.

[2] These costs have not been updated since the production of the 2000–2025 Plan Update.

[3] These projects have generally not been analyzed sufficiently to develop a cost estimate.

[4] Although these project descriptions refer to identified highways, the actual alternative selected by the MPO, if any, might be a transit improvement.

Highway Projects Included in Comments on the 2000 RTP[2]

Community	Project
Arlington & Cambridge	Rte. 2/Rte. 16 Interchange
Ashland	Rte. 135 Grade Separations
Bedford	Wiggins Ave.e Extension
Boston	Back Bay Turnpike Exit
Boston	Central Artery/Highway Connections
Boston	Extend the I-93 HOV Lane into the City
Hopkinton	I-495/South St. New Interchange
Hudson	Washington St. Widening
Regionwide	Highway/Industrial Park Access
Regionwide	Implement the Double Stack Initiative
Regionwide	ITS Roadway Projects
Regionwide	Modern Traffic Rotaries
Regionwide	Pedestrian Improvements
Sherborn	Rte. 16/27 Improvements
Subregion (MAGIC)	Highway Mobility on State Routes
Subregion (MetroWest)	Improvements to Arterial Highways
Subregion (MetroWest)	New Turnpike Interchanges

Projects Included in Comments on the 2001 RTP Update[2]

Community	Project
Braintree	Braintree Split
Braintree	Rte. 3/Union Street Safety Improvements
Danvers	Access Management for Rte. 1A/Rte. 114
Framingham	Rte. 9/Temple St.
Gloucester	Gloucester Rotary
MetroWest Region	MetroWest Regional Bike Trail Network
Natick	Rte. 9/Oak St. Improvements
Newton	New Ramp from I-95 to Riverside Station
Newton	Rte. 9/Chestnut St.
North Shore	Rte. 128 Safety Improvements
Norwood	Rte. 1/Everett St.
Regionwide	Bike and Pedestrian Projects
Regionwide	HOV Lanes for buses
Revere to Lynn	Improved Limited Access Highway
Somerville	Depress I-93
Somerville	Rte. 28 Improvements
Somerville	Extension of Somerville Bike Path (Cedar Street to Lechmere)
Westborough	Rte. 9/I-495 Interchange (outside Boston MPO region)

Projects Included in Comments on the 2004 RTP

Community	Project
Medford	Rte. 16/I-93 Connection

[1] This listing does not include projects from the Base Case or No-Build Scenario, projects that would not normally be included in a regional transportation model, or projects that are included on the previous pages.

[2] The majority by far of these projects have not been analyzed sufficiently to develop a cost estimate.

UNIVERSE OF TRANSIT EXPANSION PROJECTS FOR THE 2025 PLAN BUILD SCENARIO

Service	Passed PMT Screening Process	Project
Blue Line	X	Blue–Red connector
Blue Line	X	Wonderland Blue Line–commuter rail connector
Blue Line	X	Extension to Lynn
Blue Line		Extend from Bowdoin to Copley/Back Bay and then to Riverside, replacing the Green Line D Branch
Blue Line		Build a spur direct to airport
Blue Line		Build a spur to Winthrop
Blue Line	X	Extend to Salem
Blue Line	X	Extension from Bowdoin to West Medford via Lechmere and Somerville
Orange Line	X	Extension from Oak Grove to Reading/Rte. 128
Orange Line	X	Extension from Forest Hills to West Roxbury/Needham
Orange Line		Extend to I-95 at both ends
Orange Line		Extend to Saugus
Orange Line		Build a spur to Chelsea and Everett
Orange Line		Build a spur to Chelsea
Orange Line	X	Construct Assembly Square Station
Red Line		Extension beyond Ashmont to Mattapan in place of present streetcar service
Red Line		Northwest Extension: Alewife–Arlington Heights–Lexington
Red Line		Red Line loop to serve South Boston waterfront
Red Line		Extension along Rte. 3
Red Line	X	Extend from Alewife to Rte. 128 via Rte. 2
Red Line		New variation from Central Sq. Cambridge to JFK/UMass via Mass. Ave.
Red Line		Extend from Braintree to Randolph
Red Line		Replace light rail service with busway on Mattapan High Speed Line
Red Line	X	Extend to Weymouth via Plymouth/Kingston Line right-of-way
Green Line	X	Reopen Arborway--Heath St. segment
Green Line		Green Line to Brighton (Watertown Line)
Green Line		Brookline Village Connector (D Line–E Line)
Green Line	X	Green Line to Needham (branch from Riverside Line after Newton Highlands)
Green Line	X	Urban Ring: Construct a transit system following a circular route around the inner core
Green Line		Extend Riverside Line to Wellesley
Green Line		Connect Riverside Green Line station to Framingham/Worcester commuter rail
Green Line		Extend Green Line from Lechmere to Harvard Sq. via Union Sq. Somerville
Green Line		Extend Green Line from Lechmere to Saugus
Green Line		Convert Silver Line between World Trade Center and South Station to light rail and connect to Green Line at Boylston
Green Line		Build a new branch from North Station to Boylston via the Waterfront and South Station
Green Line	X	Extend the proposed Medford Hillside extension from Medford Hillside to Davis Sq. to connect with Red Line
Green Line		Extension from Lechmere to West Medford via Somerville
Silver Line	X	Build South Station–Boylston section of Silver Line
Silver Line	X	Connect Washington St. Silver Line to Boylston–World Trade Center Silver Line at Boylston St.
Silver Line		New connections to Logan Airport terminals: Provide new transit connections to Logan Airport

Service	Passed PMT Screening Process	Project
Silver Line	X	Convert Washington St. Silver Line to trackless trolley or light rail and extend to Mattapan via Grove Hall
Silver Line		Build new trackless trolley tunnel under Stuart St. Convert E Line to trackless trolley and connect to Silver Line tunnel via this new tunnel
Silver Line		Operate branch from Forest Hills to Dudley via Washington St.
Commuter Rail		Expand reverse-commute options
Commuter Rail		Build new parking facility at interchange of Rte. 2 and I-495
Commuter Rail	X	Fairmount Line improvements/Indigo Line
Commuter Rail	X	Extend Providence Line to T. F. Green Airport (RI)
Commuter Rail	X	Reconstruct rights-of-way and extend service from Stoughton to New Bedford and Fall River via Taunton
Commuter Rail	X	Reconstruct tracks and extend service from Needham Junction to Millis
Commuter Rail	X	Extend service from Lowell to Nashua with stop at North Chelmsford
Commuter Rail	X	Extend service from Middleborough to Wareham
Commuter Rail	X	Extend service from Middleborough to Buzzards Bay or Hyannis
Commuter Rail	X	Extend service from Fitchburg to Gardner
Commuter Rail	X	Extend service from Forge Park to Milford
Commuter Rail	X	Extend service from Salem to Peabody
Commuter Rail		Institute a new line from Worcester to Providence
Commuter Rail		Institute a new line from Worcester to Haverhill
Commuter Rail		Build Central Mass. (Waltham to Berlin via Weston, Wayland, Sudbury, and Hudson) commuter rail or busway
Commuter Rail	X	Build Alewife commuter rail station
Commuter Rail	X	Build Allston/Brighton commuter rail station
Commuter Rail	X	Build commuter rail station at Riverside and intermodal transfer facility between commuter rail and Green Line
Commuter Rail	X	Build regional commuter rail station on I-495 in MetroWest area
Commuter Rail	X	Build regional commuter rail station on I-495 in Littleton area
Commuter Rail		Purchase hybrid bus-train vehicles that would have both steel and rubber wheels to operate on Framingham/Worcester Line
Commuter Rail	X	Make improvements to the Foxborough commuter rail station to accommodate regular commuting trips, and open stadium parking facilities to park-and-ride customers
Commuter Rail		Connect the Fairmount Line to the Red Line at Mattapan
Commuter Rail	X	North-south rail link: Construct a commuter rail tunnel connecting the North Side and South Side networks with stops at North Station, South Station, and possibly an intermediate location
Commuter Rail	X	Build a rail line from Framingham to Leominster via Northborough and Southborough
Commuter Rail		Operate service from Worcester to North Station via Cambridge over the Grand Junction line, with stops at BU, MIT, and East Cambridge
Commuter Rail		Commuter rail “Inner Ring”: Melrose to Winchester
Commuter Rail		Extend Newburyport trains to Kittery, ME
Commuter Rail	X	Extend commuter rail from Haverhill to Plaistow, NH
Commuter Rail		Commuter rail from Framingham to Sudbury Center
Commuter Rail		Extend commuter rail from Worcester to Springfield
Commuter Rail		Restore Saugus Branch from Malden to Lynn via Saugus
Commuter Rail		Operate service from Boston to Rte. 1 in Peabody (branch off of Haverhill Line at Wakefield)

Service	Passed PMT Screening Process	Project
Commuter Rail	X	Operate to Danvers (branch from Salem)
Commuter Rail	X	Add South Salem stop
Commuter Rail	X	Add a new station at Millbury on Framingham/Worcester Line
Commuter Rail		Add a station at Route 128 on the Needham Line
Commuter Rail		On the Worcester commuter rail line operate rapid-transit-style service with Diesel Multiple Unit cars (DMUs) from Rte. 128 to South Station with new stops at Newton Corner, Faneuil, Brighton Center, Allston, BU Central, and Kenmore
Commuter Rail		Build new spur from South Weymouth Station into old Air Base
Commuter Rail		Restore Randolph Branch
Commuter Rail		Build a station in West Acton on Fitchburg Line
Commuter Rail		Extend proposed Greenbush Line from Scituate to Marshfield
Commuter Rail	X	Add a station on Fitchburg Line at Union Sq. Somerville
Commuter Rail	X	Build Greenbush Branch of Old Colony rail service
Commuter Rail		New station on Fitchburg Line near Twin City Plaza on Cambridge/ Somerville line
Commuter Rail		Add a station at Rte. 128/MassPike on the Framingham/Worcester Line
Commuter Rail		Build a new commuter rail station on the Haverhill/Reading Line that would serve both Sullivan Station and the potential new Assembly Square Station
Commuter Rail		Build a commuter rail branch to Logan Airport
Commuter Rail		Extend commuter rail service from Cordage Park to Plymouth Center
Commuter Rail		Extend proposed Millis Line to Medway
Commuter Rail		Institute a new commuter rail line from Lowell to New Bedford
Commuter Rail		Institute a new commuter rail line from South Acton to Marlborough
Commuter Rail		Operate EMU commuter rail trains from Hynes Convention Center to new convention center
Bus		Better downtown bus distribution: Expand the coverage of downtown stops for bus routes serving downtown
Bus		Build Central Mass. (Waltham to Berlin via Weston, Wayland, Sudbury, and Hudson) commuter rail or busway
Bus	X	Implement a network of local feeder bus services to MetroWest commuter rail stations
Bus	X	Implement a network of local feeder bus services from South Shore communities to Old Colony commuter rail stations
Bus	X	Improve feeder bus service to Fitchburg commuter rail station
Bus	X	Urban Ring: Construct a transit system following a circular route around the inner core. Phase I includes new conventional bus routes, and Phase II includes new bus rapid transit segments
Bus	X	Operate circumferential Rte. 128 bus service
Bus		Run feeder bus to Southborough commuter rail station
Bus		Run feeder bus to South Acton commuter rail station
Bus		New bus service from Framingham Exit 12 park-and-ride lot to T. F. Green Airport and Manchester Airport
Bus		Operate feeder buses to Mansfield commuter rail station
Bus		Build busway from Ruggles to Dudley
Bus		Run from Rhode Island to Fall River to connect with the proposed commuter rail line
Bus		Run a jitney van loop from Forest Hills to Longwood Medical Area to Coolidge Corner

Service	Passed PMT Screening Process	Project
Bus	X	Extend Trackless Trolley #71 from Watertown to Newton Corner
Bus		Build a bus rapid transit line along the Saugus Branch
Bus		Run more express buses to Boston from Scituate, Cohassett, Norwell, Marshfield, and Hingham
Bus	X	Add 100 additional buses regionwide
Bus		Create HOV lanes on Rte. 128 for circumferential bus service
Bus	X	New busways to Alewife Station along heavily congested portions of Alewife Brook Pkwy. and Rte. 2
Bus		Build a surface busway along the Central Artery right of way Intersuburban bus service
Boat	X	Build a ferry wharf at Russia Wharf (near South Station)
Boat		Additional commuter boats through Cape Cod Canal
Boat	X	High-speed ferry service from North Shore (Lynn/Salem) to Boston and the airport
Boat	X	Restore East Boston ferry
Boat	X	Improve ferry service from South Shore communities (Quincy, Hingham, Hull, Cohasset, and Scituate) to Boston. Improve ferry infrastructure as part of expansion
Boat		New ferry service, Assembly Sq. Mall–World Trade Center
Systemwide & Misc.		New "intercept stations" along highways: Build new stations with parking at locations where transit lines cross major highways
Systemwide & Misc.		Build regional intermodal transportation centers
Systemwide & Misc.		Light rail from Rte. 495 to Burlington
Systemwide & Misc.		Rapid transit to Chelsea (no line specified)
Systemwide & Misc.		Connect Telecom City to Urban Ring
Systemwide & Misc.		Build light rail feeder lines to Framingham from Walpole, Milford, and Marlborough
Systemwide & Misc.		Add an outer Urban Ring from Harvard Sq. to Dudley via Allston and Brookline (Bus Route #66 routing)
Systemwide & Misc.		Add an outer Urban Ring along Route 128
Systemwide & Misc.		Build light rail line from South Acton Station to Maynard Center
Systemwide & Misc.		Build light rail line in South Boston to replace #9 bus
Systemwide & Misc.	X	Extend Silver Line from Dudley Station to Mattapan and Ashmont Stations
Systemwide & Misc.	X	Extend Silver Line from Boylston Station to Kenmore Station via new subway under Stuart St. and operate two western branches: one to the Longwood Medical Area and one to Oak Square, Brighton, via Allston Landing
Systemwide & Misc.	X	Extend Silver Line from Convention Center to City Point via Summer St. and East Broadway
Systemwide & Misc.	X	Need for more rideshare and park-and-ride facilities
Monorails & Bullet Trains		North Station–South Station monorail
Monorails & Bullet Trains		Build a monorail system on a circumferential route along the I-495 right-of-way
Monorails & Bullet Trains		Build monorail along Saugus Branch railroad
Monorails & Bullet Trains		Build monorail in Needham parallel to Rte. 128 along with MBTA parking garage
Non-Motorized Modes		Build bikeways next to commuter rail lines
Non-Motorized Modes		Build bikeway from Alewife to Waltham Center
Non-Motorized Modes		Extend bikepath from Somerville to Lechmere

APPENDIX

D

PROJECT RATINGS

HIGHWAY PROJECT RATINGS

Each highway project included in the Universe of Projects with a defined description was rated for its impact consistency with ten of the twelve Boston Region MPO Regional Transportation Plan policies. One of three ratings was given: high, medium, or low. A matrix summarizing this evaluation of the projects and an explanation of the rating system follow. For ratings of transit projects, see page D-19.

Ratings for Consistency with Boston Region MPO Regional Transportation Plan Policies

Universe of Projects - Highway Projects Included in the Recommended Plan

High: â
Medium: ă
Low: ẩ
N/A: Not Applicable
N/I: No Information

Project Name	Cost	Included in 2000-2025 Plan	Policy 1 - Support Land Uses	Policy 2 - Safety and Security	Policy 3 - Improve Mobility	Policy 4 - Minimize Pollution/Conserve Energy	Policy 5 - Improve Connections Among Modes	Policy 6 - Accessible System to All	Policy 7 - Sharing of Benefits/Burdens	Policy 8 - Preservation/Modernization of System	Policy 9 - Promote Public Involvement	Policy 10 - Strengthen Economic Opportunities	Policy 11 - Preserve Community Resources/Char.	Policy 12 - Efficient/Effective Financial Resources
Bedford, Crosby Drive	$3,420,000	X	ă	ă	â	ă	N/A	N/A	N/A	â		â	ă	
Bedford & Burlington, Middlesex Turnpike	$15,380,000	X	ă	ă	â	ă	N/A	N/A	N/A	â		â	ă	
Beverly to Peabody, Rte. 128 Capacity Improvements	$60,000,000	X	N/I	â	â	ă	N/A	N/A	N/A	â		ă	ă	
Boston, East Boston Haul Road	$12,000,000	X	ă	ă	â	ă	â	N/A	â	â		ă	ă	
Boston to Newton, Double Stack Initiative	$20,000,000	X	N/A	ă	â	â	â	N/A	N/A	â		ă	ă	
Boston, Route 1A/Boardman Street Grade Separation	$8,500,000	X	N/A	â	â	â	N/A	N/A	ă	â		ă	ă	
Boston, Rutherford Avenue	$67,800,000	X	â	â	ă	ă	ă	N/A	N/A	ă		ă	â	
Canton, I-93/I-95 Interchange	$27,500,000	X	N/A	â	â	ă	â	N/A	N/A	â		ă	ă	
Canton, I-95 (NB)/Dedham Street Ramp	$3,000,000	X	ẩ	ă	â	ă	â	N/A	N/A	â		ă	ă	
Concord and Lincoln, Route 2/Crosby's Corner	$12,600,000	X	N/A	â	â	â	N/A	N/A	N/A	â		ă	ă	
Concord, Concord Rotary	$15,000,000	X	ẩ	â	â	ă	N/A	N/A	N/A	â		ă	ă	
Danvers & Peabody, Route 1/114 Corridor Improvements	$40,000,000	X	ẩ	â	â	ă	N/A	N/A	N/A	â		ă	ă	
Everett & Medford, Revere Beach Parkway	$80,000,000	X	ă	â	â	ă	N/A	N/A	N/A	â		â	ă	
Everett, Malden & Medford, Telecom City Boulevard	$11,240,000	X	ă	ă	ă	ă	N/A	N/A	N/A	ă		â	ă	
Framingham to Worcester, Double Stack Initiative	$8,000,000	X	N/A	ă	â	â	â	N/A	N/A	â		ă	ă	
Framingham, Route 126/135 Grade Separation	$50,000,000	X	â	â	ă	â	ă	N/A	ă	â		â	â	
Framingham, Rte. 9/Rte. 126 Interchange	$15,000,000	X	N/A	ă	â	ă	N/A	N/A	N/A	â		ă	ă	
Hanover, Route 53	$4,000,000	X	ẩ	ă	â	ă	N/A	N/A	N/A	â		ă	ă	
Hingham and Norwell, Route 53/228	$3,000,000	X	N/A	â	â	ă	N/A	N/A	N/A	â		ă	ă	
Lynnfield to Reading, Rte. 128 Capacity Improvements	$50,000,000	X	N/I	â	â	ă	N/A	N/A	N/A	â		ă	ă	
Malden & Revere, Route 1 Improvements	$33,600,000	X	ă	â	â	ă	N/A	N/A	N/A	â		ă	ă	
Marlborough and Hudson, I-495/I-290/Route 85 Interchange	$28,000,000	X	N/A	â	ă	ă	N/A	N/A	N/A	â		ă	ă	
Natick & Wellesley, Double Stack Initiative	$20,000,000	X	N/A	ă	â	â	â	N/A	N/A	â		ă	ă	
Newton & Needham, Needham Street/Highland Avenue	$6,600,000	X	ă	â	â	ă	N/A	N/A	N/A	â		ă	ă	
Quincy, Burgin Parkway	$18,000,000	X	ă	â	â	ă	ă	N/A	N/A	â		â	ă	
Quincy, Quincy Center Concourse, Phase 2	$6,000,000	X	N/A	ă	â	ă	N/A	N/A	N/A	â		ă	ă	
Reading & Woburn, I-93/I-95 Initiative	$25,000,000	X	N/I	â	â	ă	N/A	N/A	N/A	â		ă	ă	
Revere, Mahoney Circle Grade Separation	$25,000,000	X	â	â	â	â	N/A	N/A	â	â		ă	ă	
Revere, Route 1/Route 16 Interchange	$3,900,000	X	N/A	â	â	ă	N/A	N/A	â	â		ă	ă	
Revere, Route 1A/Route 16 Connection	$39,600,000	X	â	ă	â	ă	N/A	N/A	â	â		ă	ă	
Salem, Boston Street	$2,000,000	X	ă	â	ă	ă	N/A	N/A	N/A	â		ă	ă	
Salem, Bridge Street	$3,000,000	X	â	â	â	ă	â	N/A	N/A	â		ă	ă	
Somerville, I-93/Mystic Avenue Interchange	$50,000,000	X	â	â	â	ă	N/A	N/A	N/A	â		â	ă	
Weymouth to Duxbury, Route 3 South Additional Lanes	$180,000,000	X	ẩ	â	â	ă	N/A	N/A	N/A	â		ă	ă	
Weymouth, Naval Air Station Access Improvements	$74,700,000	X	N/I	â	â	ă	ă	N/A	N/A	â		â	ă	
Weymouth, Route 18	$16,000,000	X	ă	â	â	ă	ă	N/A	N/A	â		ă	ă	
Wilmington, I-93/Ballardvale Street Interchange	$15,000,000	X	N/A	â	â	ă	N/A	N/A	N/A	â		ă	ă	
Wilmington and Reading, I-93/Route 129 Interchange	$15,000,000	X	N/A	â	â	ă	N/A	N/A	N/A	â		ă	ă	
Woburn, New Boston Street Bridge	$2,000,000	X	ă	ă	â	ă	â	N/A	N/A	ă		ă	ă	

Note: Policies 9 and 12 are policies of the MPO but are not applicable for rating individual projects

Universe of Projects - Highway Projects with Descriptions Not Included in the Recommended Plan

High: â
Medium: ă
Low: ẵ
N/A: Not Applicable
N/I: No Information

Project Name	Cost	Included in 2000-2025 Plan	Policy 1 - Support Land Uses	Policy 2 - Safety and Security	Policy 3 - Improve Mobility	Policy 4 - Minimize Pollution/Conserve Energy	Policy 5 - Improve Connections Among Modes	Policy 6 - Accessible System to All	Policy 7 - Sharing of Benefits/Burdens	Policy 8 - Preservation/Modernization of System	Policy 9 - Promote Public Involvement	Policy 10 - Strengthen Economic Opportunities	Policy 11 - Preserve Community Resources/Char.	Policy 12 - Efficient/Effective Financial Resources
Acton to Lexington, Route 2 Capacity Improvements			ẵ	ậ	ậ	ă	N/A	N/A	N/A	ậ		ă	ă	
Arlington & Cambridge, Route 2/Route 16 Interchange			ậ	ậ	ậ	ă	ă	N/A	N/A	ậ		ă	ă	
Bedford, Wiggins Avenue Extension			ẵ	ă	ă	ă	N/A	N/A	N/A	ă		ă	ă	
Boston to Braintree, I-93 Capacity Improvements			N/A	â	â	ắ	ắ	N/A	ắ	â		ắ	ắ	
Boston, Back Bay Turnpike Exit	**$100,000,000**		ắ	ắ	ắ	ắ	N/A	N/A	N/A	ắ		â	ẩ	
Braintree, Route 3/Union Street Safety Improvements [Town of Braintree]			N/A	ậ	ắ	ắ	ắ	N/A	N/A	ậ		ắ	ắ	
Canton to Foxborough, I-95 Capacity Improvements			ẵ	ậ	ậ	ắ	N/A	N/A	N/A	ậ		ắ	ắ	
Canton, East/West Connector Road	**$7,200,000**		ẵ	ắ	ậ	ắ	N/A	N/A	N/A	ắ		ắ	ẩ	
Gloucester, Gloucester Rotary [NSTF sub-region]			N/A	ậ	ắ	ắ	N/A	N/A	N/A	ậ		ắ	ắ	
Hopkinton, I-495/South Street New Interchange	**$20,000,000**		ẵ	ậ	ậ	ắ	N/A	N/A	N/A	ậ		ắ	ắ	
Hudson, Washington St. Widening			ẵ	ắ	ậ	ắ	N/A	N/A	N/A	ậ		ắ	ắ	
Littleton to Wrentham, I-495 Capacity Improvements			ẵ	ậ	ậ	ắ	N/A	N/A	N/A	ậ		ắ	ắ	
Lynnfield to Saugus, Route 1 Capacity Improvements			ắ	ậ	ậ	ắ	N/A	N/A	N/A	ậ		ắ	ắ	
Marlborough, Boundary St./Goddard Rd. Connection	**$2,500,000**		ẵ	ắ	ắ	ắ	N/A	N/A	N/A	ắ		ắ	ắ	
Natick, Route 9/Oak Street Improvements [TPPC]			N/A	ậ	ậ	ắ	N/A	N/A	N/A	ậ		ắ	ắ	
Newton, New Ramp from I-95 to Riverside Station [TPPC]			ắ	ắ	ậ	ắ	ậ	N/A	N/A	ậ		ắ	ắ	
Newton, Route 9/Chestnut Street [TPPC]			N/A	ậ	ậ	ắ	N/A	N/A	N/A	ậ		ắ	ắ	
Norwood, Route 1/Everett Street [TRIC sub-region]			N/A	ậ	ậ	ắ	ắ	N/A	N/A	ậ		ắ	ắ	
Randolph to Raynham, Route 24 Capacity Improvements			ẵ	ậ	ậ	ắ	N/A	N/A	N/A	ậ		ắ	ắ	
Salem, Commercial St./Tremont St.	**$500,000**		ắ	ắ	ắ	ắ	N/A	N/A	N/A	ắ		ắ	ắ	
Somerville to Woburn, I-93 Capacity Improvements			N/A	ậ	ậ	ắ	ắ	N/A	N/A	ậ		ắ	ắ	
Somerville, Depress I-93 [Everett 11/13/01]			ậ	ắ	ắ	ắ	N/A	N/A	N/A	ắ		ắ	ắ	
Wellesley to Woburn, Route 128 Capacity Improvements			N/A	ậ	ậ	ắ	N/A	N/A	N/A	ậ		ắ	ắ	

DATE: **March 18, 2003 (Revised August 5, 2003)**

TO: **Planning and Programming Committee**

FROM: **David Mohler, CTPS**
Anne McGahan, CTPS
Jim Gallagher, MAPC

RE: **Tying Policies to Highway Projects**

The Planning and Programming Committee has decided to use the project matrix as one of the inputs for assessing proposed projects during the development of the 2004 Regional Transportation Plan. This matrix, which was first used last year during the development of the 2002 Plan Update, assesses proposed projects for consistency with 10 broad policies.

Per the committee's instructions, staff reassessed the proposed highway projects included in the Plan Update. This reassessment resulted in many discrepancies from the ratings performed for the Plan Update, even though the policies and the projects are unchanged. Staff, therefore, performed a third assessment, limiting our review to the identified discrepancies. The resulting staff recommendations were presented at the Planning and Programming Committee meeting on March 6th. The committee requested documentation of the process by which staff assessed projects.

This memorandum documents the process by which staff used the policies to assess projects. Most of this memorandum is a listing of the policies. Staff comments are indicated below each sub-policy. The way staff used the policy to assess projects is shown in a box after each policy.

Boston Region MPO Regional Transportation Plan Policies

Policy 1: Promote transportation projects that support state, regional and local land use policies.

Integrating transportation and land use policies can result in more efficient use of the regional transportation system, bringing jobs, housing, shopping and services closer together, and reducing sprawl.

To accomplish this policy, the Boston Region MPO will:

A. Consider both existing development and densities and any adopted state, regional and local plans in transportation decision making and seek to develop transportation plans that are consistent with them. Priority will be given to projects in areas identified in local and regional plans as being suitable for concentrated development.

Staff Comment: *This sub-policy requires the consideration of existing development and densities, as well as land use plans, in determining whether a project supports the MPO's land use policy. It also speaks to the importance of regional as well as local plans for assessing the appropriateness of concentrated developments.*

B. Solicit the input of environmental, community, economic development and other appropriate agencies on MPO certification documents to promote the integration of transportation with these interests.

Staff Comment*: This sub-policy is process oriented and cannot be used to assess projects in the matrix. The MPO will consider at the appropriate time during Plan development any project-specific comments received from the noted entities.*

C. Consider the impact of transportation projects on existing and future land use.

Staff Comment*: This sub-policy again speaks to the need to consider existing conditions, as well as future land uses.*

D. Consider the appropriate use and maintenance of transportation rights-of-way to maximize public benefits.

Staff Comment*: This sub-policy is concerned with reserving transportation rights-of-way, which are a valuable public resource.*

E. Encourage transportation investments that support transit-oriented designs, and increased potential for walking and bicycling.

Staff Comment*: This sub-policy provides MPO support for transit-oriented development and for projects that promote bicycle and pedestrian uses.*

Based upon the above interpretation of the 5 land use sub-policies, staff assessed the projects for consistency with the MPO land use policy as follows:

- **A project was rated high if it could facilitate development in an adjacent area that has high density and mixed use development, or has zoning in place that allows this development; where the existing or planned transportation infrastructure promotes transit, pedestrian, and bicycle use; or if the project is clearly tied to a planned transit-oriented development. In keeping with state and regional priorities, the project should also maintain or improve access to a brownfield site (as defined under the Department of Environmental Protection's 21E program) and be located in a community designated an EDA (economically disadvantaged area) and an ETA (economic target area).**

- **A project was rated medium if it maintained or improved access to a brownfield site in an EDA/ETA community and if the adjacent land use or zoning provides for high density, single use development.**

- **A project was rated low where the adjacent zoning allowed only low-density uses and where there is significant undeveloped land that would be made more likely to be developed with improved access.**

- **If the project is going through an already high density, mixed use area, without any large adjacent brownfield/underutilized sites, then the Land Use rating will be NA, since there is nothing to redevelop, and the project needs to be justified for congestion relief or safety improvements. Any project unlikely to have an impact on adjacent land uses was rated NA.**

Policy 2: Improve safety and security for all transportation system users.

Travelers should be confident of a safe and secure trip. Safety can be enhanced through careful attention to design, redesign, and upgrading of facilities. Operational safety can be enhanced through timely and effective maintenance.

To accomplish this, the Boston Region MPO will:

A. Support designs, projects, and programs that accommodate safe travel for all system users throughout the transportation network, regardless of mode. This includes designs that encourage bicyclists, motorists, transit riders and pedestrians to share the transportation network safely.

Staff Comment*: This sub-policy commits the MPO to considering the safety of all users in any proposed project.*

B. Work with state agencies and communities to support design concepts that ensure that consideration of operational efficiency, comfort, safety and

convenience of the motorist are balanced with the needs of the communities, the environment, pedestrians, and bicyclists.
Staff Comment*: This sub-policy balances the needs of motorists with those using other modes, reaction to the perception that safety is used as an inappropriate justification for over-designing proposed projects, and needs of those passing through an area with those who live there.*

C. Support maintenance and operations of system infrastructure to provide for safety.

Staff Comment*: This policy ties operation and maintenance of the existing system to the MPO's safety policy.*

Based upon the above interpretation of the 3 safety sub-policies, staff assessed the projects for consistency with the MPO safety policy as follows:

- **A project was rated high if it was proposed in direct response to an identified safety hazard or if it included significant safety components.**
- **A project was rated medium if it was relatively neutral on this issue: it did not address an identified safety hazard, did not include significant safety components, and did not cause a degradation of safety for system users.**
- **A project was rated low if it caused a degradation of safety for system users.**

Policy 3: Improve transportation mobility for people and freight.

Improved mobility requires access to the transportation system and the availability of safe, reliable, and convenient travel options so that users can choose the services that best fit their needs.

To accomplish this policy, the Boston Region MPO will:

A. Support projects that increase the availability of transportation options.

Staff Comment*: This sub-policy favors projects that increase mode choices.*

B. Encourage projects that reduce reliance on single-occupant vehicles.

Staff Comment*: This sub-policy favors projects that reduce automobile demand or increase mode choices (except projects that expand general purpose highway capacity).*

C. Support projects and programs that improve transit service by making it faster, more reliable, and more convenient.

***Staff Comment**: This policy supports transit service enhancements as a means of increasing regional mobility.*

D. Support transit services, including water transit, that increase and complement connections among transit services and communities.

***Staff Comment**: This policy supports transit service connections as a means of increasing regional mobility.*

E. Assist agencies and communities in planning and implementing projects that provide safe and convenient bicycle and pedestrian connections to transit routes, between activity centers, and across communities.

***Staff Comment**: This policy supports bicycle and pedestrian projects as a means of increasing regional mobility.*

F. Support programs that improve reverse commute options.

***Staff Comment**: This policy supports reverse commute options as a means of increasing regional mobility.*

G. Plan and support transportation system management projects and programs that improve the operation of existing services, such as improved signal systems, bus rapid transit, bus lanes and traffic signal preemption, and incident management programs.

***Staff Comment**: This policy supports operational enhancements to the existing system as a means of increasing regional mobility.*

H. Encourage the use of new technology and programs, including highway and transit Intelligent Transportation System programs and bus rapid transit, to improve the operation of the transportation system, improve safety, and reduce congestion.

***Staff Comment**: This policy supports ITS and other technology projects as a means of increasing regional mobility.*

I. Support projects that expand transportation system capacity in areas that are identified as problems in the Boston Region Congestion Management System and as dictated by sound fiscal management. Transit capacity may be expanded by increasing service frequency, expanding vehicle capacity, or expanding the system. Highway capacity may be increased by improving interchanges or adding HOV lanes. Adding capacity by building general-purpose lanes should be considered only when no demonstrably better solution such as public transportation can be found.

***Staff Comment**: This policy limits MPO support for capacity expansions to areas of congestion identified through the CMS process. It also precludes MPO support for additional general purpose lanes unless "no demonstrably better solution can be found."*

J. Expand commuter rail parking where necessary and practical.

***Staff Comment**: This policy supports the expansion of commuter rail parking as a means of increasing regional mobility.*

Based upon the above interpretation of the 10 mobility sub-policies, staff assessed the projects for consistency with the MPO mobility policy as follows:

- **A project was rated high if its primary purpose is to add a mode choice, provide a needed operational improvement on the existing system, or provide a connection to transit or between transit modes.**
- **A project was rated medium if its effect on mobility is neutral or if it only incidentally impacts mobility as a means to addressing another regional need (e.g., safety).**
- **A project was rated low if it significantly decreases mobility through a reduction in transit service or highway lanes or limits or removes current modal connections.**

SPECIAL NOTE: STAFF MADE NO EFFORT TO DETERMINE WHETHER FOR ANY PARTICULAR HIGHWAY CAPACITY PROJECT, A "DEMONSTRABLY BETTER SOLUTION CAN BE FOUND."

Policy 4: Minimize transportation-related pollution of the environment and promote energy conservation.

This plan recognizes that reduced reliance on single-occupant vehicles and use of alternative fuel vehicles promote long-term air quality, reduced energy consumption and natural resource protection.

To accomplish this policy, the Boston Region MPO will:

A. Place a priority on identifying and evaluating environmental impacts in the transportation planning process.

***Staff Comment**: This sub-policy is process oriented and was not used to assess projects in the matrix, although the assessment of projects for compliance with the MPO's environmental policy is one of the methods of complying with this sub-policy.*

B. Encourage projects and programs that increase the use of low-polluting fuels and efficient engine technology in vehicle fleets and transit vehicles.

***Staff Comment**: This sub-policy favors the use of alternative fuel vehicles.*

C. Encourage the design and construction of facilities that assure that materials used in operations and maintenance will not have detrimental impacts on soil and water, and will minimize light and noise pollution.

***Staff Comment**: This sub-policy is process oriented and was not used to assess projects in the matrix.*

D. Encourage the design, construction, and operation of facilities and services that promote energy efficiency and air quality.

***Staff Comment**: This sub-policy favors projects that result in energy efficiencies and improved air quality.*

E. Plan and fund programs to reduce demand for transportation services and facilities, including ridesharing and employer-based congestion reduction programs.

***Staff Comment**: This project favors Transportation Demand Management projects that reduce the need for transportation services.*

Based upon the above interpretation of the 5 pollution sub-policies, staff assessed the projects for consistency with the MPO pollution policy as follows:

- **A project was rated high if it results in improved air quality (either through regional improvements or localized impacts), includes the use of alternative fuel vehicles as an integral component of the project, or is aimed at reducing the need for transportation services.**
- **A project was rated medium if its impact on air quality is neutral.**
- **A project was rated low if it is projected to have a negative impact on air quality.**

Policy 5: Provide and improve connections among transportation modes.

This Transportation Plan promotes a multimodal, comprehensive approach to transportation, with the various modes complementing each other. Investment choices should be influenced by how an improvement to a single transportation mode can make the entire system work better.

To accomplish this policy, the Boston Region MPO will:

A. Work to improve coordination among the local, regional, and state jurisdictions that own and operate the region's transportation system to better provide for local and regional transportation needs.

Staff Comment*: This sub-policy is process oriented and was not used to assess projects in the matrix.*

B. Fund projects, such as vehicle and bicycle parking expansion, that provide additional capacity at intermodal facilities.

Staff Comment: *This sub-policy favors projects that provide additional capacity at intermodal facilities.*

C. Support projects that facilitate ease of transfer between modes, including improved fare collection systems and transit pass programs, and encourage transit schedules that promote timely transfers between services.

Staff Comment*: This sub-policy favors operational projects that improve transfers between transit modes.*

D. Fund systems that provide intermodal information on incidents, alternative routes, parking availability, and transit schedules.

Staff Comment*: This sub-policy supports the funding of real-time transportation information systems.*

E. Support projects and programs that improve access to transportation facilities.

Staff Comment*: This project favors projects, including highway projects, that improve access to transportation facilities, for all modes.*

Based upon the above interpretation of the 5 connectivity sub-policies, staff assessed the projects for consistency with the MPO connectivity policy as follows:

- **A project was rated high if it adds capacity to an intermodal facility or improves access to such a facility, improves transfers between transit modes, or provides real-time information as an integral component of the project.**
- **A project was rated medium if its impact on connectivity is neutral or if it only incidentally impacts modal connectivity.**
- **A project was rated low if it significantly degrades an existing intermodal connection.**
- **A project was given a NA rating if the project was not designed to**

provide connections between modes.

Policy 6: Provide a transportation system that is accessible to all people.

The transportation system should provide access to transportation options for all people regardless of physical limitation, economic status, age or ethnicity.

To accomplish this policy, the Boston Region MPO will:

A. Work with local, regional, and state jurisdictions to identify and assess structural and operational barriers to mobility for transportation disadvantaged populations and seek to address them through a comprehensive program of construction, maintenance and operational improvements.

Staff Comment*: This sub-policy commits the MPO to a comprehensive program of accessibility improvements for "transportation disadvantaged populations."*

B. Seek to provide better access for all to transportation throughout the region, including for our youth and for our elderly and disabled users.

Staff Comment*: This sub-policy favors projects that improve transportation access for the elderly, the young and the disabled.*

Based upon the above interpretation of the 2 accessibility sub-policies, staff assessed the projects for consistency with the MPO accessibility policy as follows:

- **A project was rated high if it includes ADA improvements as an integral component of the project or if it significantly improves transit service for the young or the elderly.**
- **A project was rated medium if its impact on transportation accessibility for the elderly, the young or the disabled is neutral.**
- **A project was rated low if it degrades transportation accessibility for the elderly, the young, or the disabled.**
- **A project was given a NA rating if it did not require accessibility improvements.**

Policy 7: Promote the equitable sharing of the transportation system's benefits and burdens.

All users and communities should be treated fairly in the provision of transportation services; should not be inequitably burdened by impacts from transportation projects; and should be invited to participate in transportation decision-making.

To accomplish this policy, the Boston Region MPO will:

A. Adopt measures of Environmental Justice for the region.

Staff Comment*: This sub-policy is process oriented and was not used to assess projects in the matrix.*

B. Use these Environmental Justice measures as an evaluation tool in planning and programming.

Staff Comment*: This sub-policy commits the MPO to using its environmental justice measures in project selection.*

C. Apply planning resources to the resolution of identified environmental justice issues.

Staff Comment*: This sub-policy is process oriented and cannot be used to assess projects in the matrix.*

Based upon the above interpretation of the 3 environmental justice (EJ) sub-policies, staff assessed the projects for consistency with the MPO EJ policy as follows:

- **A project was rated high if it addresses an existing burden in an EJ community by providing additional benefits from existing transportation infrastructure, if it removes an existing burden in an EJ community, or if it primarily benefits an EJ community.**
- **A project was rated medium if it does not primarily benefit an EJ community and does not inordinately burden an EJ community.**
- **A project was rated low if the burden imposed on an EJ community is significantly greater than the associated benefits accruing to that community.**
- **A project was given a NA rating if it was not located in an environmental justice community.**

Policy 8: Emphasize the preservation and modernization of the existing transportation system.

Past investment in transportation facilities in the Boston region has resulted in a system that people and businesses rely on every day. Protecting that investment by preserving and upgrading facilities and services that meet a demonstrated need is a top priority.

To accomplish this policy, the Boston MPO will:

A. Put priority on projects that maintain and modernize existing infrastructure.

Staff Comment*: This sub-policy commits the MPO to funding maintenance and modernization projects as a priority.*

B. Promote public ownership and use of existing rights-of-way necessary for transportation needs consistent with statutory authority or other obligations providing for disposition of property.

Staff Comment*: This sub-policy is process oriented and was not used to assess projects in the matrix.*

Based upon the above interpretation of the 2 preservation and modernization sub-policies, staff assessed the projects for consistency with the MPO preservation and modernization policy as follows:

- **A project was rated high if it modernizes the existing transportation system by addressing an MPO-identified safety or mobility problem by improving a facility that is operating significantly below accepted design standards.**
- **A project was rated medium if it does not address an MPO-identified safety or mobility problem.**
- **A project was rated low if it makes an identified safety or mobility problem worse.**

Policy 9: Promote public involvement in all phases of transportation planning and design.

All users of the transportation system should have a voice in the transportation planning process. Public participation will continue through the Regional Transportation Advisory Council (Advisory Council), the MPOs advisory committee, and through other, complementary avenues.

To accomplish this policy, the Boston Region MPO will:

A. Adopt, in cooperation with Advisory Council, a new MPO Public Participation Plan that provides all users of the transportation system with the opportunity to participate in the transportation planning process.

B. Use extensive and effective means to reach users, including meetings and various media, always presenting information in a clear, jargon-free format.
C. Work to simplify the project review process by establishing review timelines and deadlines, providing updated status information regularly, and working with implementing agencies to ensure that all communities understand the process.

D. Continue to work with the Advisory Council in the development of all MPO documents, and support Advisory Council's work of bringing the public's views to MPO decision making.

E. Reach out to under-represented persons and groups to ensure that decisions are made through an open and participatory process.

Staff determined that this policy regarding public involvement was entirely process-oriented and not suited to the assessment of individual projects.

Policy 10: Strengthen the economic opportunities in the Boston region through transportation investments specifically taking into account areas targeted for economic development by state, regional and local plans.

The transportation system is fundamental to and intertwined with economic activity.
To accomplish this policy, the Boston Region MPO will:

A. Put priority on transportation investments related to existing centers of economic activity; or to areas with adequate water and sewer infrastructure; or to areas targeted for economic development.

Staff Comment*: This sub-policy prioritizes transportation projects that serve existing employment areas or town centers, that help target future growth consistent with the MPO's land use policy, or that serve areas targeted for economic development.*

B. Coordinate available data on freight movements in the Boston region in order to inform MPO decisions on infrastructure investments.

Staff Comment*: This sub-policy is process oriented and cannot be used to assess projects in the matrix.*

C. Encourage development of a comprehensive plan for freight movement that includes an evaluation of: freight infrastructure needs and access to intermodal facilities (air, road, rail, and water), and consider impacts on neighborhoods and the environment.

***Staff Comment**: This sub-policy is process oriented and cannot be used to assess projects in the matrix.*

Based upon the above interpretation of the 3 economic development sub-policies, staff assessed the projects for consistency with the MPO economic development policy as follows:

- **A project was rated high if serves an existing employment area or town center, targets future growth consistent with the MPO's land use policy, or serves a state-designated revitalization area.**
- **A project was rated medium if it does not serve an economic growth area as defined by this policy and does not contravene the MPO's targeted growth policy.**
- **A project was rated low if it does not serve an economic growth area defined by this policy and has the potential to facilitate economic growth that would contravene the MPO's targeted growth land use policy.**

Policy 11: Support the preservation of community resources and character in the transportation planning process.

To accomplish this policy, the Boston Region MPO will:

A. Encourage and support transportation enhancement projects to preserve and improve the natural and built environment.

***Staff Comment**: This sub-policy commits the MPO to support transportation enhancement projects.*

B. Support the use of traffic calming when appropriate.

***Staff Comment**: This sub-policy commits the MPO to support the appropriate use of traffic calming techniques.*

C. Work with state agencies and communities to support design concepts for roads that balance the needs of users of the facilities with the function and character of surrounding land uses, including scenic roads and historic areas.

***Staff Comment**: This sub-policy requires the MPO to consider community character in its project assessment process.*

Based upon the above interpretation of the 3 community character sub-policies, staff assessed the projects for consistency with the MPO community

character policy as follows:

- **A project was rated high if it is clearly designed to improve or maintain the existing community character, including using traffic-calming where appropriate and providing streetscape improvements or other enhancements as an integral component of the project.**
- **A project was rated medium if it is located within an area where a transportation project's impact on community character is not a significant concern or if the particular project's impact is unclear at this time.**
- **A project was rated low if it negatively impacted an existing community character.**

Policy 12: Efficiently and effectively secure and apply financial resources for the maintenance, modernization, and appropriate expansion of the regional transportation system.

The Boston MPO has an obligation to provide maximum transportation benefit from its available financial resources and to explore and identify innovative financing options for transportation projects.

To accomplish this policy, the Boston Region MPO will:

A. Work to identify and acquire new revenue for transportation.

B. Explore and identify innovative funding sources including revenue sharing among communities and peak period pricing.

C. Promote new public-private partnerships as a way to provide needed services.

D. Work with implementing agencies, communities and project proponents to identify and adopt policies, procedures and information systems to estimate and contain project costs.

Staff determined that this policy regarding financial resources was entirely process oriented and not suited to the assessment of individual projects.

TRANSIT PROJECT RATINGS

Evaluations of the transit expansion projects broken down by mode (rapid transit, bus and trackless trolley, commuter rail, and boat) follow. High, medium, and low ratings are used.

OVERALL RAPID TRANSIT PROJECT EVALUATION

Project Description	Type	Utilization	Mobility	Cost Effective	Air Quality	Service Quality	Econ/Land Use Impacts	Environ. Justice	Total
Blue–Red Connector	Line Ext.	◗	◗	●	◗	◗	●	◗	◗
Convert Dudley/ Boylston section of Silver Line to light rail	Line Ext.	❍	❍	❍	❍	◗	●	●	❍
Extend Blue Line from Bowdoin to West Medford	Line Ext.	◗	◗	◗	◗	◗	●	●	◗
Extend Blue Line from Lynn to Salem	Line Ext.	●	◗	◗	●	❍	◗	◗	◗
Extend Blue Line from Wonderland to Lynn	Line Ext.	●	◗	◗	●	◗	●	●	●
Extend Green Line to West Medford	Line Ext.	◗	◗	◗	◗	◗	◗	●	◗
New Green Line Needham Branch	Line Ext.	❍	❍	❍	❍	◗	❍	❍	❍
Orange Line No. Ext. From Oak Grove to Reading/Route 128	Line Ext.	◗	❍	❍	◗	❍	❍	❍	❍
Orange Line So. Ext. From Forest Hills to Rt 128 Via Hyde Park	Line Ext.	❍	❍	❍	◗	◗	◗	◗	❍
Orange Line So. Ext. From Forest Hills to W. Roxbury/Needham	Line Ext.	❍	❍	❍	❍	❍	❍	◗	❍
Red Line extension to Weymouth	Line Ext.	◗	❍	❍	◗	❍	●	❍	❍
Red Line NW Ext. from Alewife to Rt 128	Line Ext.	❍	❍	❍	◗	◗	❍	❍	❍
Restore Green Line service between Heath St & Arborway	Line Ext.	❍	❍	◗	❍	●	●	◗	◗
Silver Line East Ext. to City Point	Line Ext.	❍	❍	●	◗	◗	●	❍	◗
Silver Line Phase III: South Station– Boylston Connector	Line Ext.	●	●	◗	◗	◗	●	●	●
Silver Line So. Ext. to Ashmont & Mattapan	Line Ext.	◗	◗	●	◗	●	●	●	●
Silver Line West Exts. to Allston & Longwood Medical Area	Line Ext.	●	◗	◗	◗	◗	●	◗	◗
Urban Ring Phase II	Line Ext.	●	●	●	●	●	●	●	●
Urban Ring Phase III	Line Ext.	●	●	●	●	●	●	●	●
Construct Orange Line station at Assembly Sq	New Station	❍	❍	●	◗	❍	●	◗	◗
Wonderland Connector	New Station	❍	❍	◗	◗	❍	●	❍	❍

High rating ●
Medium rating ◗
Low rating ❍

Source: Program for Mass Transportation

OVERALL BUS/TRACKLESS TROLLEY PROJECT EVALUATION

Project Description	Type	Utilization	Mobility	Cost Effective	Air Quality	Service Quality	Environ. Justice	Total
Build new busways to Alewife Station	Line Ext./ New Line	❍	❍	●	●	◗	❍	◗
Extend Trackless Trolley #71 from Watertown to Newton Corner	Line Ext./ New Line	❍	❍	●	◗	❍	❍	❍
Route 128 Circumferential Bus Service	Line Ext./ New Line	◗	●	❍	❍	❍	❍	❍
Suburban Commuter Rail Feeder Bus Services	Line Ext./ New Line	◗	●	◗	◗	●	●	●
Urban Ring Phase I	Line Ext./ New Line	●	◗	❍	❍	●	●	●

High rating ●
Medium rating ◗
Low rating ❍

Source: Program for Mass Transportation

OVERALL COMMUTER RAILROAD PROJECT EVALUATION

Project Description	Type	Utilization	Mobility	Cost Effective	Air Quality	Service Quality	Econ/Land Use Impacts	Environ. Justice	Total
Build CRR spur from Framingham to Leominster	Line Ext.	●	●	○	○	○	●	◗	◗
Build CRR spur from Salem to Danvers	Line Ext.	◗	●	◗	◗	○	○	◗	●
CRR branch from existing Old Colony lines to Greenbush	New Line	●	●	◗	◗	○	○	○	●
CRR to Millis	Line Ext.	●	●	◗	◗	○	○	○	◗
CRR to New Bedford/Fall River	Line Ext.	●	●	◗	◗	○	◗	◗	●
Extend CRR from Providence to T.F. Green (RI)	Line Ext.	◗	●	◗	◗	◗	○	○	◗
Extend CRR from Fitchburg to Gardner	Line Ext.	○	●	○	○	○	●	◗	◗
Extend CRR from Forge Park to Milford	Line Ext.	◗	●	◗	◗	○	○	◗	◗
Extend CRR from Haverhill to Plaistow	Line Ext.	●	○	●	●	○	○	○	◗
Extend CRR from Lowell to Nashua	Line Ext.	●	●	◗	●	○	○	○	◗
Extend CRR from Middleborough to Wareham	Line Ext.	◗	●	○	◗	○	◗	○	◗
Extend passenger rail service from Wareham to Hyannis	Line Ext.	◗	○	○	●	○	○	○	○
North-South Rail Link	Line Ext.	●	◗	◗	◗	◗	●	◗	●
Operate full time service to Foxboro Sta.	Line Ext.	○	◗	○	◗	○	○	○	○
Operate high-frequency Riverside - South Station CRR	Line Ext.	○	○	○	○	○	◗	○	○
Operate high-frequency Riverside - JFK/Umass CRR	Line Ext.	◗	○	○	○	○	◗	◗	○
Operate high-frequency Readville - Allston Landing CRR	Line Ext.	○	◗	○	○	○	●	●	◗
Add station at Millbury on the Framingham/Worcester line	New Station	○	◗	●	◗	○	●	○	◗
Add a station at So. Salem on Rockport/Newburyport line	New Station	○	◗	●	●	○	◗	◗	◗
Build a new Allston/ Brighton CRR station	New Station	○	◗	◗	◗	○	●	●	◗
Build a new CRR station on the Fitchburg Line at Union Sq, Somerville	New Station	○	◗	●	◗	○	●	●	●
Build a regional CRR station along Rt 2 west of I-495	New Station	○	○	○	◗	○	○	○	○
Build regional CRR station on I-495 in Metrowest	New Station	◗	○	◗	●	○	○	○	◗
Connect Fitchburg CRR w/ Red Line at Alewife	New Station	○	○	◗	◗	◗	●	○	◗
Fairmount Line Imps.	New Station	◗	●	◗	○	●	●	●	●
New CRR station at Riverside	New Station	○	○	●	◗	◗	○	○	◗

High rating ●
Medium rating ◗
Low rating ○

Source: Program for Mass Transportation

OVERALL BOAT PROJECT EVALUATION

Project Description	Type	Utilization	Mobility	Cost Effective	Air Quality	Service Quality	Economic/ Land Use Impacts	Environ. Justice	Total
Russia Wharf/ South Station	Line Extension/ New Line	◗	◗	●	❍	◗	●	❍	●
High-Speed Ferry Service From the North Shore to Boston and the Airport	Line Extension/ New Line	◗	❍	❍	❍	❍	◗	◗	❍
Restore East Boston ferry	Line Extension/ New Line	❍	❍	◗	❍	❍	●	●	◗
Improved Ferry Service From South Shore Communities (Quincy, Hingham and Hull) to Boston.	Frequency Improvement	●	◗	◗	❍	❍	❍	◗	◗

High rating ●
Medium rating ◗
Low rating ❍

Source: Program for Mass Transportation

APPENDIX

E

SOCIOECONOMIC FORECASTS

Socioeconomic Forecasts 2003

For use in the Regional Transportation Plan

Holly St. Clair, Manager of Metro Data Center
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The Metropolitan Area Planning Council (MAPC) has recently completed population, employment and household projections for 164 communities in the Boston regional model area. These totals will be included in the Boston metropolitan area regional transportation plan, which requires that we produce numbers to the year 2025. Standard trends methodologies were used to calculate the "Baseline" projections; they are based on historical trends in each of the communities in the region over the last 5 to 20 years. Second, we developed the "Targeted Growth" scenario for MAPC communities, which changes the Baseline population and employment projections to better represent an alternative future land-use scenario, a future scenario that represents a long-term goal that we are using the transportation plan to help us achieve. These population and employment numbers were then sent out to all communities for comment. Final numbers were produced incorporating community feedback. Details on the methodologies are described below.

I. Baseline Forecasts Methodologies

Population

Data Requirements

The following statistical information was required for the population projections: 1) population by age groups, SF1 from 1980 and 2000 and 1990 population by age from MARS (Modified Age-Race-Sex)[1] published by the Bureau of the Census; 2) annual births and deaths from 1980 to 2000 from the Massachusetts Department of Public Health (MassChip) to calculate natural increase and produce estimates of age-specific migration; 3) total and age-specific birth rates from the Massachusetts Department of Public Health to project births; 4) age-specific death rates for Massachusetts in the form of a life table from the U.S. Bureau of the Census.

Projection Methods

A region wide population age group projection was created through use of the Cohort-Migration-Survival method by establishing consistency between past decade-by-decade population and age group fluctuations, and levels of natural increase and net migration and then extrapolating those relationships into the future.

Natural Increase

The population of each community from 1980 to 2000 was broken down into age groups from 0-4 to 75 and over. Each age group was then multiplied by the age group specific survival rate calculated for Massachusetts. The result of this calculation will give an estimate of how many individuals from each age group will have survived 5 years after a starting point. Starting points are usually based on the 1980 and 1990 US Census population counts.

Birth rates by age of mother are calculated by taking the number of births by age of mother for each town for years from 1980 to 2000 (in five year increments) and dividing them into the number of females that resided in the community between forecast intervals. For example the total number of births for a community between 1980, 1985, 1990, 1995 for each age group would be divided by the number of females in each age group reported by the US Census for the same time periods.

[1] The primary reason for producing the MARS file is to redistribute the "Some Other Race" counts in the Census to the OMB race categories which do not include and "Other" response. The Census Bureau uses various indicators such as surname and place of to determine the race of the individual. This was done in both 1990 and 2000.

The 1990 MARS data includes another important correction that was not necessary in the 2000 data. In 1990, the Census questions on age did not accurately determine age 0 for the under 1 population. It also overstated the number of centenarians. The 1990 MARS file included corrections for this age misreporting, hence the difference between age distributions from the 1990 STF1 and the 1990 MARS. For use in projections, the MARS file is the better distribution of age.

Natural increase is calculated by taking the population by age group at a starting point, multiplying the age groups by age group specific survival rates to determine the estimated population that will have survived the 5-year period.

The females of childbearing age must be estimated by taking the population age groups between 15-50 and multiplying them by 52% (the proportion of the population that is female). The resulting number of females in each age group can then be multiplied by the specific birth rates associated with each age group for each town. The result of the last calculation is the estimated population of the 0-9 age groups for the following time period.

In summary, the natural increase for the 10-75 plus age groups was calculated by multiplying each age group by the specific survival rate established at the state level. The 0-9 age groups were calculated by establishing the community specific birth rates by age of mother and then multiplying those rates by the corresponding estimated female age group populations.

Migration

Historical absolute migration is calculated by subtracting the expected population in an end point period from the actual population reported by the US Census. The expected population is calculated by using the natural increase methodology discussed above. For example, natural increase was calculated for each community from 1980 to 1990. The result of this calculation would be considered the expected population in 1990. The expected population would be subtracted from the actual population reported by the US Census in 1990 to determine the difference in the two figures. The difference or net migration represents the population that either moved in (positive migration) or out (negative migration) of the community over the past 10 years.

The above calculations were performed for the periods of 1980-1990, 1990-2000, and an average of the 1980-1990 and 1990-2000 periods. It has been observed that in general most communities experienced negative migration in the 1980-1990 period and positive migration in the 1990-2000 period (despite the 1988 to 1992 recession).

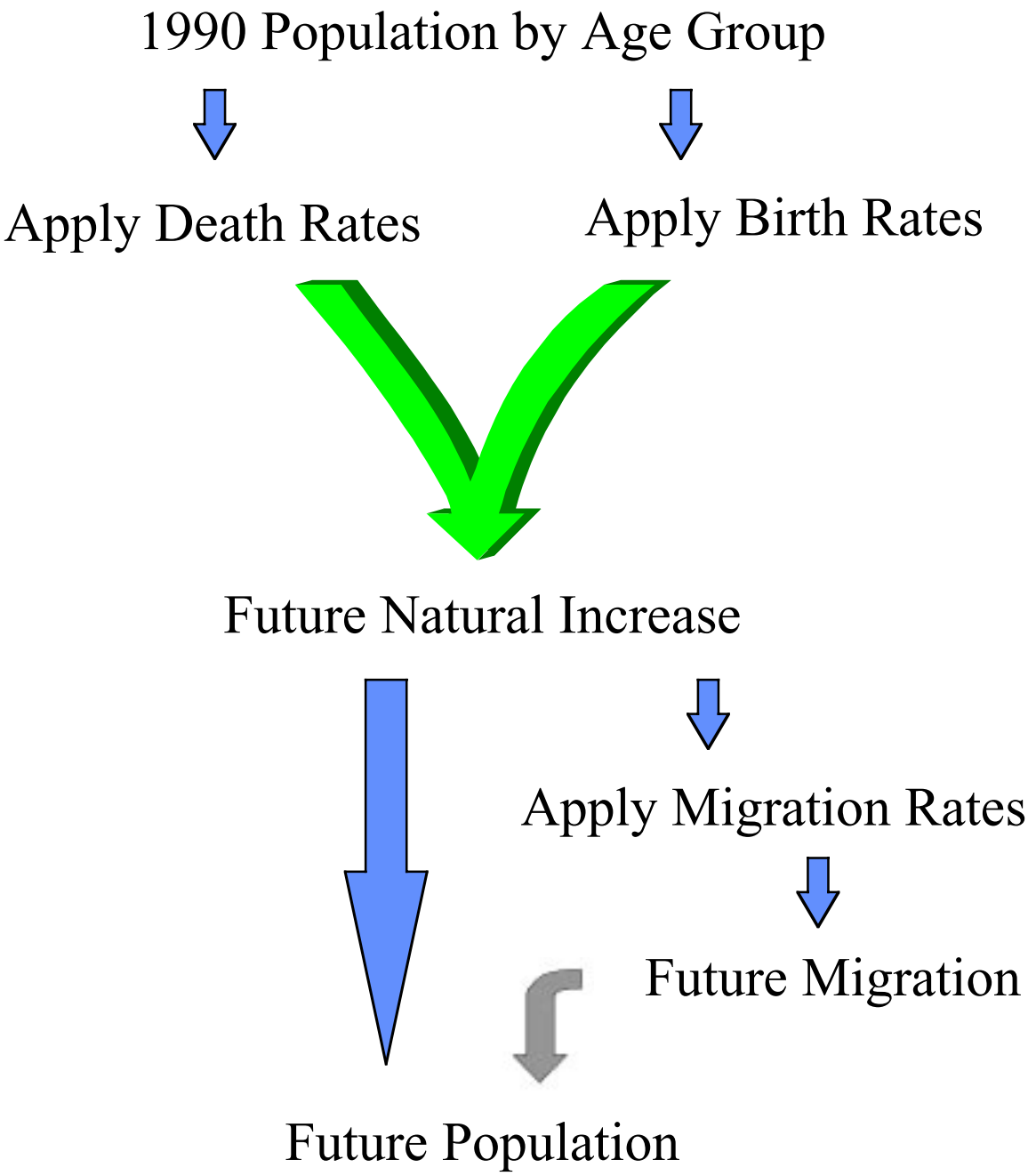
Using the above absolute migration calculations for each age group, the migration rate of each age group is calculated by dividing the number of people that migrated in each age group by the number of individuals that existed in the age group in the starting period.

Forecast years

Year 2005 was calculated by using the US Census 2000 population as a starting point. Natural increase was calculated for each community using the method described above. Three series of net migration were calculated using the migration rates established for the 1980-1990 (regional low), 1990-2000 (regional high) periods and then the average of the two periods (regional medium). The net migration result, which is derived by multiplying the migration rate by the number of people in each age group that survived from the starting period, is then added to the surviving population in each age group. For example if 100 people existed in an age group in the starting period of 2000 and 90 survived to the period of 2005, and there was a migration rate of +10% or 9 people, then the 2005 ending population would be 99.

Three forecasts (low, high, and medium) were developed for each community for each five year period to the year 2025. In some cases our population and employment projections have modified the most severe trends, which otherwise would have resulted in very large gains or losses. Our methodology compensates for small characteristic changes that communities go through over time. One of the three forecasts was ultimately selected for each of the 164 communities based on the reasonability of historical trends, community feedback, and professional judgement regarding migration trends due to socioeconomic patterns in the Boston region.

Cohort Survival-Migration Method Population Forecast



Employment

Data Requirements

Data used for the employment projections included ES-202 Series data from the Massachusetts Department of Employment and Training from 1985 to 2001. This data included total employment and employment by sector for the 164 communities in the regional model area. The employment by sector data is derived from reports filed by all employers subject to unemployment compensation laws, both state and federal.

Projection Methods

Employment projections were based on 18 years of historical data in the region and by community. The projections were prepared for total employment and by sector. The rate of change was calculated for employment data from 1985-2001 for each community's total employment and by sector. This rate of change or slope represents the amount by which jobs grew or decreased annually. Using 2001 as a base year, the historical rate of change was used to project employment figures to 2005, 2010, 2015, 2020 and 2025.

The projected total employment and jobs by sector were first calculated for both the 101 MAPC communities and the 164 communities in the regional model, to establish a regional "control" figure. Then, totals were calculated for the individual communities for total employment and by sector, and aggregated for comparison to the regional control. If the aggregated community total and sector figures did not match the regional control figures, the community figures were scaled so that they matched the regional numbers.

Historical manufacturing data was generally limited to the years 1992-2001, since the tremendous loss of manufacturing jobs during the 1980s would have caused unrealistic losses in the forecast.

As explained in the introduction to this document, some forecasts and the regional and subregional totals were later altered as a result of community feedback. Also, in some cases in which projected numbers for individual communities seemed unrealistically low, either the slope, the period of historical data used to calculate the slope, or the projected numbers themselves were altered.

Households

Data Requirements

Data used for the household projections included data from the United States Census from 1990 and 2000. This data included total households, number of residents in group quarters, total population, total population forecasts (see methodology above) and number of persons 20 and over for the 164 communities in the regional model.

Projection Methods

Total household and total population data from the Census was used to calculate persons per household for 1990 and 2000. (Total group quarters population, that is, individuals living in dormitories, hospitals, or other institutional environments, was subtracted from total population before doing this calculation) A projection of persons per household was then calculated based on the percent change from 1990 to 2000, using each successive forecast year (2005, 2010, 2015, 2020 and 2025) as the base year.

The projection for total households was calculated by dividing the total projected population in each community (minus group quarters) by the projected persons per household data.

II. Targeted Growth Scenario/Transportation Analysis Zones

The actual population and employment totals for the 101 MAPC communities used in the 2003 regional transportation plan are based on a "Targeted Growth" scenario, as was done for the last plan. This scenario assumes limited growth in communities with constrained water supplies, and reallocates some of this growth to communities well served by transit stations. The idea is for growth to occur in areas that are best able to handle it. The Targeted Growth scenario alters the baseline population and employment forecasts, therefore leading to different results in some communities.

These Targeted Growth community totals have also been allocated to Transportation Analysis Zones (TAZs) within each MAPC community. TAZs provide the regional transportation model with a finer level of detail for analyzing trips around the region. A map showing TAZs and the allocation of Targeted Growth numbers to each TAZ was sent to each community. Unless MAPC received information to the contrary, future growth was allocated among TAZs based on the 2000 Census results for population and 1991 Dun and Bradstreet employment data (updated for 1995 by CTPS).

III. Community Review

The medium baseline population and employment projections, Targeted Growth Scenarios and the TAZ maps were sent out to the head planner and selectman of every MAPC municipality. For the 63 communities outside of MAPC, the projections were sent to the appropriate Regional Planning Agency for comment. Communities were asked to comment on the following:

1) Does MAPC's projection of your community's future population and employment seem unreasonably high or low? (Perhaps we missed a recent change.)
2) Are there any large scale activities in your community or your neighboring communities that may cause your projections to need adjustment? (For example, a large subdivision or office park may have just been approved in your community.)
3) Are recent or future developments expected in different areas of your community than we have focused on in our Targeted Growth scenarios? (Perhaps we need to change the TAZ allocation.)

Community comment packages also included the dates and times of eight public meetings, where community members could hear a presentation on the projections, ask questions and offer comments in person. In preparation for these meetings electronic copies were sent to all MAPC members in the eight subregions. In addition MAPC staff members were available for one on one conversations or visits to meet with individual communities by request.

We received community comment from over 50% of the MAPC towns and about half of the Regional Planning Agencies. Community comments ranged from general agreements and disagreements to detailed spreadsheets of future development patterns that are contrary to historic trends.

In finalizing the baseline population projections, community comments were used to choose between the low, high or medium projections. Community comments were also used to alter historical trends in the employment forecasts. In addition community comments were used to allocate future growth in TAZ's. In cases where Regional Planning Agencies offered their population and employment numbers, we used their projections.

APPENDIX

F

2000 BASE CASE AND 2025 NO-BUILD ASSUMPTIONS

2000 BASE CASE PROJECTS

Highway Projects

Route 53, Phase I (Hanover): Widening of Route 53 from Route 3 to Mill Street (Hanover) was completed by MassHighway in 1994. This project widened Route 53 from a two-lane to a five-lane roadway segment.

HOV Lane on I-93 (Mystic Avenue): This MassHighway project is an extension of the existing southbound HOV lane to the Sullivan Square (Somerville) off-ramp. The HOV lane is for vehicles with two or more occupants and is a total of 2.03 miles in length. The extension was opened in September 1994.

HOV Lane on the Southeast Expressway: This six-mile HOV lane is between Furnace Brook Parkway (Quincy) and Freeport Street (Dorchester, Boston). The facility opened in November 1995. It uses contra-flow technology, in which a travel lane is reallocated from the off-peak side of the expressway to the peak side for the duration of the peak period. Originally the HOV lane was for vehicles with three or more persons. This was reduced to two or more persons via a sticker program and then instituted as two or more by right in 1999.

Ted Williams Tunnel: The Ted Williams Tunnel (aka Third Harbor Tunnel) extends 1.6 miles (including .75 miles under water) from South Boston (Boston) to Logan Airport property (East Boston). It opened for commercial traffic on December 15, 1995. The approximate cost for the tunnel was $1.5 billion.

South Boston Bypass Road (aka Haul Road): The roadway segment runs from the Ted Williams Tunnel (South Boston) to near the I-93/Massachusetts Avenue interchange (Boston). The roadway is restricted to commercial vehicles only. It was opened in July 1993. This roadway project is part of the Central Artery project.

Blue Hill Avenue Signal Coordination: This MassHighway project involved the coordination of signals along the Blue Hill Avenue corridor in Boston.

Brighton Avenue Signal Coordination: This MassHighway project involved the coordination of signals along the Brighton Avenue corridor in Boston.

Marrett Road Signal Coordination: This MassHighway project consists of reconstructing Route 2A (Marrett Road) from I-95 (Route 128) west to beyond the Massachusetts Avenue extension.

Beverly-Salem Bridge: Replace a drawbridge over the Danvers River/Beverly Harbor connecting the cities of Beverly and Salem with an elevated fixed structure. The bridge opened for traffic on August 2, 1996.

Route 20, Segment 1 (Marlborough): Widen a 1.1-mile section of Route 20 from two to four lanes. The project extends from just west of Farm Road to the Raytheon traffic lights just east of DiCenzo Boulevard. The project includes the replacement of traffic signals at the intersection of Route 20 with Farm Road and Wilson Street, the installation of traffic signals at DiCenzo Boulevard West, and the coordination of these two signals with existing signals at Hager Street and Raytheon Company Drive. This project opened to traffic in October 1999.

Leverett Circle Bridge (Charlestown): A part of the Central Artery/Tunnel project, two new ramps connect the Tobin Bridge via a parallel four-lane bridge with Storrow Drive and Leverett Circle area on the northwestern edge of downtown Boston with points north of the Charles River.

I-495 interchange (Marlborough/Southborough): Construct an interchange to I-495 between Route 9 and Route 20. Major elements of the work include the construction of four entrance/exit ramps for I-495 with two bridges and a connector road from the ramps to Crane Meadow Road, as well as the reconstruction and signalization of Crane Meadow Road. This project was advertised in September 1998 and work is ongoing.

I-93/Industriplex interchange (Woburn): Construct an interchange to I-93 between I-95 and Route 129. Major elements of the work include the construction of four entrance/exit ramps for I-93 with two bridges and a connector road from the ramps to Commerce Way, as well as the reconstruction and signalization of the Commerce Way intersection. This project was advertised in June 1997 and was opened to traffic in October 2000.

Quincy Center Concourse, Phase I (Quincy): Construct the Quincy Center Concourse Bridge connecting Burgin Parkway to Parking Way. The work also includes the reconstruction of sections of Burgin Parkway, the Granite Street Connector, and Parking Way, including the installation of an interconnected traffic signal system. The 2025 No-Build Scenario does not include the final two phases of the Quincy Center Concourse project – the connection of Burgin Parkway to Hancock Street (the Westside Link) and the connection of Hancock Street to Mechanic Street/ Revere Road (the Eastside Link). This project was advertised in October 1998.

Route 62 and Middlesex Turnpike (Burlington): Make traffic safety improvements to Route 62 between the Route 3 overpass and Network Drive (formerly Kent Road) and to Middlesex Turnpike from Lexington Street to Terrace Hall Avenue and Network Drive. The improvements to Route 62 include the installation of a traffic signal and the reconstruction of two others, the widening of the roadway from two to four lanes, and the installation of a sidewalk along one side of the roadway. Work on Middlesex Turnpike includes the installation of two traffic signals and the reconstruction of two others, the widening of the roadway from two to four lanes, an additional left-turn lane at three separate locations, and the installation of a sidewalk along one side of the roadway.

Route 9 (Wellesley): Widen Route 9 from four to six lanes from Willow Street to the I-95 (Route 128) northbound on-ramp. This project was advertised in July 1999 and was completed in 2000.

Route 138 (Canton): Widen Route 138 from two to four lanes from the Route 128 interchange (the northern limit of the Washington Street Bridge) to 200 meters north of the intersection of Route 138 and Royal Street/Blue Hill River Road. This project was advertised in August 1999 and was open to traffic in October 2000.

Bridge Street (Salem): Widen Bridge Street from Flint Street to St. Peter Street to two lanes in each direction, including the reconstruction of the Washington Street rotary. The benefits of the project include: lessening traffic congestion, operational improvements, improved access to the commuter rail station, and improved safety.

Transit Projects

Urban Ring Bus Service: This MBTA circumferential bus service was begun in 1994. It consists of three limited-stop bus routes providing connections among the Red Line, the Orange Line, and the Green Line branches. The three services are:

- CT1: Central Square (Cambridge) to B.U. Medical Center (Boston)
- CT2: Kendall Square (Cambridge) to Ruggles Station (Boston) via Longwood Medical area. The service extension to Sullivan Square began in 2000.
- CT3: Andrew Station (South Boston) to Longwood Medical area (Boston) via Ruggles Station. The service extension of the CT3 to Logan Airport was instituted by the MBTA in September 1999.

Worcester Commuter Rail, Partial Service: This MBTA commuter rail service from Framingham station to Worcester station with no intermediate stops began in September 1994. This includes four inbound trains from Worcester in the morning and one in the afternoon, and four outbound trains from Framingham in the afternoon and one in the evening. This service includes Grafton Station, which opened in February 2000.

Additional Park-and-Ride Spaces: These are the 15,931 new parking spaces added between January 1, 1991 and December 31, 2000. Parking spaces were added at commuter rail stations, including Needham Heights, Worcester, Lowell, Lynn, Readville, and West Concord.

South Station Transportation Center: This MBTA improvement consists of the intercity bus terminal above the commuter rail tracks and platforms at South Station. The facility was opened in October 1995. The facility serves intercity bus carriers, major regional carriers, and commuter bus operators. The bus concourse has 23 sawtooth docks, 4 pull-through docks, and 2 airport-link docks. This project does not include a pedestrian connector between the bus station and the railway station.

Amtrak Northeast Corridor Electrification: This Federal Railroad Administration/Amtrak project involves the electrification of the Northeast Corridor rail line from Boston to New Haven, Connecticut, the purchase of high-speed train sets and expansion of passenger train service from Boston to New York. Service using the electrified track began in 2000. Acela high-speed service began in December 2000.

Commuter Boat Service in the Inner Harbor: Additional MBTA commuter boat service includes new service from Lovejoy Wharf (North Station Boston) to Courthouse Fan Pier (South Boston) and the World Trade Center (South Boston). This service supplemented the existing service at Charlestown Navy Yard, Long Wharf (Boston), and Logan Airport (Boston). Lovejoy Wharf and Courthouse Fan Pier were both opened in 1999.

Newburyport Commuter Rail Service: Extension of the MBTA commuter rail line from Ipswich Station (Ipswich) to Newburyport, a length of 9.6 miles. There is an intermediate stop with a new station and associated parking at Rowley. The service opened in October 1998. The additional parking at Rowley and Newburyport Stations is included in the 15,931 "Additional Park-and-Ride Spaces" (see project above). The service includes 13 inbound and 13 outbound trips during the week and 6 inbound and 6 outbound trips on the weekend.

Old Colony Commuter Rail (two lines): This MBTA commuter rail service includes the restoration of two of the Old Colony lines. Service runs from South Station to Middleborough/Lakeville Station with six intermediate stops, and service from South Station to Kingston and Cordage/

Plymouth with six intermediate stops. Service on the two lines began in September 1997. The additional parking at the stations is included in the 15,931 "Additional Park-and-Ride Spaces" (see project above). This project does not include the proposed Greenbush branch of the Old Colony commuter rail line.

Route 128 Amtrak Station: This project, jointly constructed by Amtrak and the MBTA, will consist of a new station for the Northeast Corridor Amtrak service and the MBTA Attleboro service. At full-build, the station will have an associated parking garage with 2,750 parking spaces (550 reserved for Amtrak). Electrified trains (Amtrak) began serving the station in 2000. Full build is not expected until 2005, with the completion of an access road to Route 128.

Hingham Ferry: The Hingham Ferry provides commuter boat service from the Hingham Shipyard to Rowes Wharf in downtown Boston. Service has been provided since the late 1970s, and in the late 1990s, high-speed catamarans were introduced to the service. This project is a substitute for the Greenbush Line SIP commitment until the line is in service.

Improved Service on the Haverhill Commuter Rail Line: In July 1997, service was increased on the Haverhill commuter rail line. Increased service included the running of eight additional trains each day, including express trains that shorten peak-period travel time. This project is a substitute for the Greenbush Line SIP commitment until the line is in service.

Salem-Boston Express Bus: Express bus service between Salem and Boston was introduced in the fall of 1997. Service is provided from the North Shore via Lynn Central Square and Logan Airport's Terminal C, providing direct, one-seat service between the North Shore and the South Boston Piers area, the Financial District, and Downtown Crossing. This project is a substitute for the Greenbush Line SIP commitment until the line is in service.

2025 NO-BUILD PROJECTS

Highway Projects

Central Artery: The Central Artery/Tunnel project is the largest, most complex, and technologically challenging highway project in American history. The estimated cost of the project is $14 billion, with an approximate completion date of April 2005. This Massachusetts Turnpike Authority project is highlighted by the construction of an eight-to-ten lane, limited-access, 1.5-mile underground expressway to replace the existing elevated I-93 highway. Other components of the project are the Ted Williams Tunnel from South Boston to Logan Airport, an extension of I-90 from near South Station to Logan Airport and Route 1A in East Boston, four major highway interchanges, a cable-stayed bridge across the Charles River, and the reconstruction of an additional 2.1-mile segment of I-93. In all, the project is building or rebuilding 161 lane miles of urban highway, about half in tunnels, in a 7.5-mile corridor. Approximate completion dates are:

- Ted Williams Tunnel (opened December 15, 1995—included in 2000 Base Case)
- South Boston Bypass Road (opened 1993—included in 2000 Base Case)
- Charlestown/Leverett Circle Bridge (opened October 7, 1999—included in 2000 Base Case)
- I-90 Extension to the Ted Williams Tunnel (opened January 2003)
- I-93 Northbound (opened March 2003)
- I-93 Southbound (approximately April 2004)
- Project completion (approximately April 2005)

Massachusetts Avenue/Lafayette Square, (Cambridge): This project realigns the intersection of Massachusetts Avenue, Main Street, and Columbia Street. The signalized intersection will be moved to a realigned four-way intersection opposite Sidney Street on the south side of Massachusetts Avenue.

Cambridgeport Roadways: Street patterns in Cambridgeport from Massachusetts Avenue to Memorial Drive will be realigned, including Sidney Street, Waverly Street, Albany Street, and Brookline Street. The benefits of the project include the diversion of traffic away from neighborhood streets, traffic flow improvements, and economic development opportunities.

I-95 (SB)/Dedham Street On-ramp (Canton): Construction of a new ramp from Dedham Street to I-95 southbound. There is no signal at the onramp. This project will provide direct access to I-95 (South) from Westwood's University Avenue industrial area. The benefits of the project include a reduction in congestion and delays at the current access point (Blue Hill Drive) and improved access for commuters wishing to use the Route128 commuter rail station.

Route 140 (Franklin): Route 140 will be widened from one lane in each direction to two lanes in each direction from I-495 to Garelick Farms. The alignment of Route140 will also be altered to accommodate an improved diamond interchange. The length of Route 140 that will be affected is 1.2 miles. The benefits of the project include a lessening of traffic congestion, operational improvements at the affected interchange, associated travel time savings, and economic development opportunities.

Route 139 (Marshfield): This MassHighway project consisted of the reconstruction an widening of Route 139 and the installation of traffic signals in Marshfield from the Route 3 off-ramp to the Pembroke town line.

Route 20, Segments 2 and 3 (Marlborough): From Farm Road to the Sudbury town line, Route 20 will be widened from one lane in each direction to two lanes. The 0.9-mile portion of Route 20 from Felton Street to Ames Street will also be widened from one lane in each direction to two lanes in each direction. The project also includes installation of a new signal at the intersection of Route 20 and Williams Street.

Bridge Street Bypass (Salem): Construction of a new road along the North River from Veteran's Memorial Bridge to the vicinity of St. Peter Street and Bridge Street.

Route 128 Additional Lanes (Randolph to Wellesley): Widen Route 128 from three lanes in each direction to four lanes in each direction in both directions from Randolph to Wellesley. The lane volumes for this portion of the corridor are the highest volumes on Route 128.

Route 38 (Wilmington): This MassHighway project consists of widening and reconstructing Route 38 from Route 129 (Richmond Street) to Middlesex Avenue. Signalization improvements will be made at the intersections of Route 38/ Clark Street, Route 38/Wilmington Plaza, and Route 38/Richmond Street.

Route 1 and Associated Improvements (Foxborough): ($14 million) As a result of a directive from the Massachusetts Legislature, MassHighway will oversee a project to improve access to the new CMGI Field in Foxborough. Contract #1 focuses on the area between the intersection between Route 1 and North Street and the intersection of Route 1 and Pine Street in the town of Foxborough. A grade-separated interchange is to be built at the north end of the stadium on Route 1. A flyover bridge/ramp will be built on the south side of the stadium to Route 1. A new access drive will be built from North Street into the stadium. The cost of this contract is $10 million. Contract #2 deals with improvements along Route 1 between the two nearest interstate highways. A new slip ramp will be constructed at the Route 1/I-95 interchange in Sharon. New sidewalks will be built on North Street from the access road to the Walpole town line. The shoulder along Route 1 in Foxborough and the Route 1/I-495 ramps in Plainville will be widened. Regional and local signage improvements are also part of this contract. The cost for Contract #2 is $4 million.

Route 3 North: ($385 million) Widen Route 3 along a 21-mile stretch from Burlington to the New Hampshire border. The affected towns are Bedford, Billerica, Chelmsford, Westford, Tyngsborough, and Burlington. The highway will be

expanded from two to three lanes in each direction. There will also be full right and left shoulders in each direction. All of the bridges along the corridor will be reconstructed to accommodate a potential fourth lane in each direction. The average daily traffic volume for the New Hampshire border end of the project was 63,800 vehicles in 1999. On the Billerica portion of the project, the average daily traffic volume was 84,000 vehicles. The MEPA approval process is complete. The design-build agreement was approved by MassHighway on August 2, 2000. There is an approximate 42-month design/build schedule. The cost and programming for this project are being carried in the Northern Middlesex Council of Governments Transportation Plan.

Transit Projects

North Station Improvements: This MBTA project includes the relocation of the above-ground portion of the Green Line to Lechmere to underground. The new rapid transit station will include a super platform that will allow easy transfers between the Green and Orange lines.

Blue Line Modernization: The modernization program to allow for six-car operation is underway. Modernization of the stations from Wood Island to Wonderland is complete. Aquarium Station will be renovated in conjunction with the Central Artery work.

Additional Park-and-Ride Spaces: Included in the recommended plan is the addition of at least 1,050 new surface parking spaces. At an average cost of $5,000 per space, the total cost would be approximately $5.2 million. Additional proposed spaces will be located at the following commuter rail sites within the Boston MPO region: Hamilton, West Gloucester, North Wilmington, Walpole, and Sharon. An additional 1,685 spaces outside of the Boston MPO region were included in the travel demand model analysis. Locations include Mansfield, Middleborough, Halifax, and Lowell. These figures do not include parking associated with the Worcester or Greenbush commuter rail extensions. The 2,100 park-and-ride spaces being built by the Massachusetts Turnpike Authority at interchanges 9–16 on the Massachusetts Turnpike are also included.

Worcester Commuter Rail, Full Service Including New Stations: This MBTA service will include intermediate stops in Westborough, Southborough, and Ashland. Each stop will include a new commuter rail station with associated parking. This service will replace the interim service between Framingham and Worcester. The stations were opened in 2002. The new stations were proposed as a substitute for the Greenbush Line SIP commitment until the Greenbush Line is in service.

Silver Line – Transitway, Phase 1: This MBTA transitway will provide service via a tunnel from South Station (Boston) to the World Trade Center (in the vicinity of Viaduct Street), with an intermediate station stop at Courthouse Station (in the vicinity of Northern Avenue and Farnsworth Street). Construction on this project is underway and Phase 1 service is scheduled to begin in 2003. The project also includes a surface route from the D Street portal to City Point (South Boston).

Silver Line – Washington Street, Phase 2: ($54,000,000) The MBTA's Silver Line runs along Washington Street from Dudley Square in Roxbury to Downtown Crossing in Boston. The vehicles used on the route are 60-foot articulated compressed natural gas buses and their low-floor design makes them handicapped accessible. The buses operate in mixed traffic from Dudley Square to Melnea Cass Boulevard, where they then enter a reserved lane. At the Massachusetts Turnpike, the reserved lane ends and the vehicles enter mixed traffic again. Proposed stations for the Silver Line include Dudley Square, Melnea Cass Boulevard, Lenox Street, Newton Street, Cathedral, and East Berkeley Street. Additionally, the vehicles will make stops at Herald Square, New England Medical Center, Chinatown, and Downtown Crossing. This project is a Central Artery/Tunnel commitment.

Mattapan Refurbishment: This MBTA project is the refurbishment of the existing PPC (Presi-

dential Conference Committee) cars currently running on the Mattapan High Speed Line (Boston-Mattapan-Milton). There are no scheduled run-time or frequency improvements associated with this project.

Airport Intermodal Transit Connector: ($35 million) This project would provide new transit service in Boston from South Station Intermodal Center to the Logan Airport terminals. There would be approximately eight vehicles, which would be similar to those used in the Silver Line-Transitway Section A, except that these vehicles will have more luggage storage space. The service would use the MBTA South Boston Piers Transitway tunnel from South Station to South Boston, and then the Ted Williams Tunnel to the five Logan Airport terminals. The capital portion of this service would be sponsored by Massport. This service would provide for enhanced connection between the Red Line and Logan Airport. There would continue to be AITC bus service between the Blue Line Airport Station and the Logan airport terminals. This project must be completed by June 2004 as part of the administrative consent order between EOTC and EOEA.

Industriplex Intermodal Center (Woburn): This is a joint-agency (MassHighway, Massport, and MBTA) project. The Industriplex in Woburn provides an intermodal facility for the northern suburbs that combines MBTA commuter rail, Massport's Logan Express shuttles, a 2,400-space parking lot, and a station on Amtrak's service to Portland, Maine. Ground was broken on the Industriplex in 2000. MassHighway has completed a new interchange with I-93 that improves access to the facility. In addition to its intermodal component, Industriplex provides improved access to both I-93 and Route 128, is adjacent to growing employment centers, and increases parking capacity. The parking increase partially addresses the SIP commitment of new park-and-ride spaces.

New Commuter Rail Station at JFK/UMass Station: This station was added to the Old Colony commuter rail service lines and provides connections to the MBTA Red Line, local bus service, and UMass shuttle service. Access is also provided to UMass and the JFK Library. This project is a substitute for the Greenbush Line SIP commitment until the Greenbush Line is in service.

CAPITAL INVESTMENTS NOT AFFECTING THE TRAVEL MODEL

Green Line Vehicles – Type 8: The MBTA is in the process of receiving new Green Line vehicles from the manufacturer. The vehicles feature a low-floor design that allows mobility-impaired riders to access them at any of the Green Line stations that have been designated as key stations. The Type 8 vehicles also feature interior message displays, electronic exterior route indicators, and recorded station announcements. The MBTA will purchase 100 new Green Line vehicles.

Blue Line Vehicles: The MBTA will purchase new six-car train sets for the Blue Line. These vehicles can be used on the Blue Line once the reconstruction of stations has been completed. The Blue Line is the only one of the three subway lines to operate only four-car train sets during peak periods. Reconstruction of the existing stations involves the lengthening of platforms so that the longer trains can be accommodated. Once the platforms have been lengthened and the new train sets have been purchased, the current Blue Line vehicles may be used to supplement existing vehicles on the Orange Line.

Low-Emission Buses: The MBTA is committed to the purchase of 314 compressed natural gas (CNG) buses for use systemwide. The purchase of the new vehicles is required by 2004 in the consent order agreed to by EOTC and EOEA in 2000 relating to the fulfillment of Central Artery project mitigation commitments.

Dorchester Branch Modernization: The MBTA will reconstruct four stations on the Dorchester branch of the Red Line. The four stations included in the project are Savin Hill, Field's Corner, Shawmut, and Ashmont—all located within the Boston neighborhood of Dorchester. In addition to the station work, some older bridges along the Ashmont branch will be rehabilitated.

Charles Street Station Modernization: This project involves the reconstruction of the Charles Street Station on the Red Line. Goals of the project are to make the station accessible and to improve its relationship to the surrounding Charles Circle/Cambridge Street area.

Bus Maintenance Facilities: The MBTA's purchase of 314 new CNG buses marks the first time this type of vehicle will be used in the system. In order to service these alternative-fuel vehicles, the MBTA will build some new facilities and will retrofit existing facilities to maintain the CNG fleet.

Automated Fare Collection: This project involves complete replacement of the MBTA's current fare collection equipment on all subway, trolley, trackless trolley, and bus vehicles. The new automated fare collection (AFC) equipment will provide several benefits to the MBTA and its riders. In addition to the current monthly pass, riders will be able to purchase stored-value cards. This fare medium acts as a debit card, allowing passengers to use any mode in the system provided that the dollar value remaining on the card is sufficient to pay the fare. Value can be added to stored-value cards after they are purchased, either at fare collector booths or at automatic vending machines (AVM). Stored-value cards are beneficial to less frequent riders because they can have the convenience of a pass without having to invest in an unlimited-ride monthly pass. They also reduce the amount of cash transactions in the system. AFC turnstiles will be better able to provide accurate data on fare collection and revenue for the MBTA. Since AFC turnstiles have both "read" and "write" capabilities, the MBTA can use them as a paperless method of providing free transfers between buses. Another fare policy that can be implemented with AFC is the distance-based fare.

Green Line Accessibility: This project involves the completion of the Green Line's key station program. The key station program will put the Green Line in compliance with the Americans with Disabilities Act (ADA). Copley, Arlington, and Government Center stations in the central subway will be made accessible. In addition, several key stations along the Green Line's surface routes will be made accessible through the construction of elevated platforms.

Amtrak Service to Portland, Maine: In 2001, Amtrak reintroduced service between Boston and Portland, Maine. The service uses North Station as its Boston terminus. Other stops include Haverhill, Massachusetts; Exeter, Dover, and Durham, New Hampshire; and Old Orchard Beach, Wells, and Saco, Maine. Travel time between Boston and Portland is approximately two and half hours.

Project descriptions for the 2025 Build Projects in the Recommended Plan are included in Chapter 5.

APPENDIX G

ALTERNATIVE PROJECT LISTS TESTED WITH THE TRANSPORTATION MODEL

SCENARIO 1

Based on Projects Included in the 2000–2025 Plan Update

Highway Projects

Crosby Drive (Bedford)

Middlesex Turnpike (Bedford & Burlington)

Rte. 128 Capacity Improvements (Beverly to Peabody)

Rte. 1A/Chelsea St. Bridge Connection

Route 1A/Boardman Street Grade Separation (Boston)

Rutherford Avenue (Boston)

Double Stack Initiative (Boston to Newton)

I-93/I-95 Interchange (Canton)

I-95 (NB)/Dedham Street Ramp (Canton)

Concord Rotary (Concord)

Route 2/Crosby's Corner (Concord and Lincoln)

Route 1/114 Corridor Improvements (Danvers & Peabody)

Telecom City Boulevard (Everett, Malden & Medford)

Revere Beach Parkway (Everett & Medford)

Route 126/135 Grade Separation (Framingham)

Rte. 9/Rte. 126 Interchange (Framingham)

Double Stack Initiative (Framingham to Worcester)

Route 53 (Hanover)

Route 53/228 (Hingham and Norwell)

Rte. 128 Capacity Improvements (Lynnfield to Reading)

Route 1 Improvements (Malden & Revere)

I-495/I-290/Route 85 Interchange (Marlborough)

Double Stack Initiative (Natick & Wellesley)

Needham Street/Highland Avenue (Newton & Needham)

Burgin Parkway (Quincy)

Quincy Center Concourse, Phase 2 (Quincy)

I-93/I-95 Initiative (Reading & Woburn)

Mahoney Circle Grade Separation (Revere)

Route 1/Route 16 Interchange (Revere)

Route 1A/Route 16 Connection (Revere)

Boston Street (Salem)

Bridge Street (Salem)

I-93/Mystic Avenue Interchange (Somerville)

Naval Air Station Access Improvements (Weymouth)

Route 18 (Weymouth)

Route 3 South Additional Lanes (Weymouth to Duxbury)

I-93/Ballardvale Street Interchange (Wilmington)

I-93/Route 129 Interchange (Wilmington)

New Boston Street Bridge (Woburn)

Plan Update–Recommended Transit Projects

Arborway Restoration (Boston)

Blue Line–Red Line Connector (Boston)

Russia Wharf Ferry Terminal (Boston)

Old Colony/Greenbush Commuter Rail (Boston to Scituate)

Medford Hillside Green Line (Boston, Medford & Somerville)

Fairmount Branch Improvements (Boston)

Silver Line Phase III (60/40) (Boston)

Urban Ring Phases 1 & 2 (Compact Communities)

100 Additional Buses to Improve Service on Existing Routes

Assembly Square Orange Line Station (Somerville)

Blue Line to Lynn

SCENARIO 2

Based on Recommendations from the Environmental Justice Committee

Highway Projects

Crosby Drive (Bedford)

Middlesex Turnpike (Bedford & Burlington)

Rte. 128 Capacity Improvements (Beverly to Peabody)

Rte. 1A/Chelsea St. Bridge Connection

Route 1A/Boardman Street Grade Separation (Boston)

Rutherford Avenue (Boston)

Double Stack Initiative (Boston to Newton)

I-93/I-95 Interchange (Canton)

I-95 (NB)/Dedham Street Ramp (Canton)

Concord Rotary (Concord)

Route 2/Crosby's Corner (Concord and Lincoln)

Route 1/114 Corridor Improvements (Danvers & Peabody)

Telecom City Boulevard (Everett, Malden & Medford)

Revere Beach Parkway (Everett & Medford)

Route 126/135 Grade Separation (Framingham)

Rte. 9/Rte. 126 Interchange (Framingham)

Double Stack Initiative (Framingham to Worcester)

Route 53 (Hanover)

Route 53/228 (Hingham and Norwell)

Rte. 128 Capacity Improvements (Lynnfield to Reading)

Route 1 Improvements (Malden & Revere)

I-495/I-290/Route 85 Interchange (Marlborough)

Double Stack Initiative (Natick & Wellesley)

Needham Street/Highland Avenue (Newton & Needham)

Burgin Parkway (Quincy)

Quincy Center Concourse, Phase 2 (Quincy)

I-93/I-95 Initiative (Reading & Woburn)

Mahoney Circle Grade Separation (Revere)

Route 1/Route 16 Interchange (Revere)

Route 1A/Route 16 Connection (Revere)

Boston Street (Salem)

Bridge Street (Salem)

I-93/Mystic Avenue Interchange (Somerville)

Naval Air Station Access Improvements (Weymouth)

Route 18 (Weymouth)

Route 3 South Additional Lanes (Weymouth to Duxbury)

I-93/Ballardvale Street Interchange (Wilmington)

I-93/Route 129 Interchange (Wilmington)

New Boston Street Bridge (Woburn)

Transit Projects

Arborway Restoration (Boston)

Blue Line–Red Line Connector (Boston)

Russia Wharf Ferry Terminal (Boston)

Old Colony/Greenbush Commuter Rail (Boston to Scituate)

Medford Hillside Green Line (Boston, Medford & Somerville)

Fairmount Branch Improvements (Boston)

Light Rail on Washington Street

Urban Ring Phases 1 & 2 (Compact Communities)

100 Additional Buses to Improve Service on Existing Routes

Assembly Square Orange Line Station (Somerville)

Blue Line to Lynn

Recommended Build Scenario

Highway Projects

Crosby Drive (Bedford)

Middlesex Turnpike (Bedford & Burlington)

Rte. 128 Capacity Improvements (Beverly to Peabody)

East Boston Haul Road/Chelsea Truck Route (Boston)

Route 1A/Boardman Street Grade Separation (Boston)

Rutherford Avenue (Boston)

Double Stack Initiative (Boston to Newton)

I-93/I-95 Interchange (Canton)

I-95 (NB)/Dedham Street Ramp (Canton)

Concord Rotary (Concord)

Route 2/Crosby's Corner (Concord and Lincoln)

Route 1/114 Corridor Improvements (Danvers & Peabody)

Telecom City Boulevard (Everett, Malden & Medford)

Revere Beach Parkway (Everett & Medford)

Route 126/135 Grade Separation (Framingham)

Rte. 9/Rte. 126 Interchange (Framingham)

Double Stack Initiative (Framingham to Worcester)

Route 53 (Hanover)

Route 53/228 (Hingham and Norwell)

Rte. 128 Capacity Improvements (Lynnfield to Reading)

Route 1 Improvements (Malden & Revere)

I-495/I-290/Route 85 Interchange (Marlborough)

Double Stack Initiative (Natick & Wellesley)

Needham Street/Highland Avenue (Newton & Needham)

Burgin Parkway (Quincy)

Quincy Center Concourse, Phase 2 (Quincy)

I-93/I-95 Initiative (Reading & Woburn)

Mahoney Circle Grade Separation (Revere)

Route 1/Route 16 Interchange (Revere)

Route 1A/Route 16 Connection (Revere)

Boston Street (Salem)

Bridge Street (Salem)

I-93/Mystic Avenue Interchange (Somerville)

Naval Air Station Access Improvements (Weymouth)

Route 18 (Weymouth)

Route 3 South Additional Lanes (Weymouth to Duxbury)

I-93/Ballardvale Street Interchange (Wilmington)

I-93/Route 129 Interchange (Wilmington)

New Boston Street Bridge (Woburn)

Recommended Transit Projects

Arborway Restoration (Boston)

Blue Line–Red Line Connector (Boston)

Russia Wharf Ferry Terminal (Boston)

Old Colony/Greenbush Commuter Rail (Boston to Scituate)

Medford Hillside Green Line (Boston, Medford & Somerville)

Fairmount Branch Improvements (Boston)

Silver Line Phase III (60/40) (Boston)

Urban Ring Phases 1 & 2 (Compact Communities)

100 Additional Buses to Improve Service on Existing Routes

Assembly Square Orange Line Station (Somerville)

Blue Line to Lynn

APPENDIX H

MODELING INFORMATION ON ALTERNATIVES ANALYZED DURING THE DEVELOPMENT OF THE TRANSPORTATION PLAN

TABLE H-1
Travel Model Results

Regional Level	Year 2000 Base Year	Year 2025 No-Build	Percent Change	Year 2025 Build	Change from No-Build	Percent Change from No-Build
Demographic Forecasts						
Population	4,308,800	4,685,500	8.7%	4,685,471		
Employment	2,412,800	2,837,300	17.6%	2,837,324		
Households	1,643,950	1,910,750	16.2%	1,910,756		
Travel Demand Forecasts (Daily)						
Trip productions	16,754,800	19,131,600	14.2%	19,131,590		
Trip attractions	16,754,800	19,131,600	14.2%	19,131,583		
Linked transit trips	775,000	966,050	24.7%	1,039,964	73,914	7.65%
Auto person trips	11,225,600	12,322,000	9.8%	12,256,375	-65,625	-0.53%
Nonmotorized trips	2,384,400	2,777,700	16.5%	2,769,405	-8,295	-0.30%
Transit mode split	6.46%	7.27%	12.6%	7.81%		
Total Commuter rail ridership	130,400	181,250	39.0%	195,850	14,600	8.06%
Commuter rail ridership (North)	46,900	67,250	43.4%	72,100	4,850	7.21%
Commuter rail ridership (South)	83,500	114,000	36.5%	123,750	9,750	8.55%
Rapid Transit ridership	670,200	798,300	19.1%	772,300	-26,000	-3.26%
Blue Line ridership	59,000	72,150	22.3%	84,500	12,350	17.00%
Orange Line ridership	167,500	198,550	18.5%	186,550	-12,000	-6.04%
Red Line ridership	237,000	281,250	18.7%	232,550	-48,700	-17.32%
Green Line ridership	206,700	246,350	19.2%	242,500	-3,850	-1.56%
Silver Line ridership	13,000	27,250	109.6%	101,200	73,950	271.38%
Urban Ring bus rapid transit (BRT)	na	na		86,400		
Local bus ridership	345,500	427,500	23.7%	452,450	24,950	5.84%
Express bus ridership	24,400	39,600	62.3%	43,550	3,950	9.97%
Total vehicle trips (modeled)	9,613,400	10,587,600	10.1%	10,553,030	-34,570	-0.33%
Average highway speed	27.2	26.7	-1.7%	26.73		
Vehicle-miles of travel (auto)	79,040,650	89,694,650	13.5%	89,735,000	40,350	0.04%
Vehicle-hours of travel (auto)	2,614,900	3,097,900	18.5%	3,013,570	-84,330	-2.72%

Transit demand constrained to future-year parking lot capacities
na = not applicable

MEMORANDUM

TO: **Dennis Dizoglio, MPO Chairman**

DATE: **July 15, 2003**

FROM: **Vijay Mahal and Bill Kuttner**

RE: **Ridership Comparison of Silver Line Phase III and Washington Street Light Rail Transit**

Responding to a request from the Environmental Justice Committee, the Working Committee of the Transportation Planning and Programming Committee directed CTPS staff to perform a comparative ridership analysis of the Silver Line Phase III with a Light Rail Transit (LRT) service on Washington Street. The purpose of this memorandum is to document the results of our analysis.

For your convenience and ready reference, a brief project description and service assumptions for the Silver Line Phase III and the Washington Street LRT are provided below.

The Silver Line Phase III project involves building an underground tunnel between New England Medical Center and South Station and providing a through-routed service (one-seat ride) from Dudley Square and Boylston Station to the Seaport area and Logan airport. When complete, the Silver Line corridor would have intermodal connections with the Orange Line at New England Medical Center and Chinatown, Green Line at Boylston, Red Line and Southside commuter rail lines at South Station and Blue Line at Airport Station. As currently envisioned, the Silver Line Phase III would consist of the following services.

Dudley to Boston Marine Industrial Park @ 10-minute headway
Dudley to Boston Convention Center @ 10-minute headway
Dudley to Logan airport @ 10-minute headway
Boylston to Boston Marine Industrial Park @ 10-minute headway
Boylston to World Trade Center @ 10-minute headway
South Station to Logan @ 10-minute headway

The effective headway of the Silver Line on Washington Street would be about 3.5 minutes during the peak periods. In the Phase III tunnel section the effective headway would be about 2 minutes during the peak periods.

The LRT on Washington Street would consist of running a service similar to the Green line from Dudley Square to Park Street Station. The level of service assumed during the peak and off-peak periods is 5 minutes and 7 minutes respectively. Due to capacity constraints in the central subway section, it would not be possible to extend the new LRT service beyond Park Street station and for the same reason, it would not be possible to provide a better frequency of service unless some service reductions are made in the other branches of the Green Line. The stopping pattern assumed for the Washington Street LRT is similar to the current Silver Line Phase I.

Table 1 presents a comparison of ridership forecasts between these two proposed improvements to the Silver line corridor. These forecasts use the most recent demographic and employment projections for 2025 developed by MAPC in May 2003.

In the No Build option, the two Silver Line services are assumed to continue to run independently: the Washington Street service would continue to Downtown Crossing, much as it does today, and the soon-to-open Piers Transitway service, including the Airport Intermodal Transit Connector (AITC), would connect South Station with the Seaport and Logan Airport.

Table 1

Silver Line Corridor

Projected 2025 Ridership

	No Build	Upgrade Washington to LRT	Integrated Silver Line
Piers Transitway + AITC	12,500	12,500	
Washington Street Service	14,750	36,800	
Integrated Silver Line			102,000
Total Over Corridor	27,250	49,300	102,000

The proposed completion of the Silver Line is projected to almost quadruple the ridership throughout the Silver Line corridor to 102,000 daily riders in 2025. The increase in ridership due to Phase III would be about 74,750 (102,000 – 27,250).

Upgrading Washington Street service to LRT would also increase ridership in the Silver Line corridor, even though there would still be two disconnected services. Ridership on the Washington Street segment would more than double. This is attributed primarily to the fact that there would be a more convenient transfer at Park Street to the Red Line and to Green Line trains going towards North Station and Lechmere. There would be no improvement in the Seaport area, so total ridership throughout the corridor would about double.

Seen in this context, it is perfectly reasonable that the integrated Silver Line would result in a quadrupling of corridor ridership. The key transfer to the Red Line would be made at South Station instead of at Park Street in the LRT proposal. While this moves the core service point away from Park Street, South Station is a much larger employment hub than Park Street or Downtown Crossing. The South Station area is undergoing major commercial expansion, while the Park/Downtown Crossing area is largely built out. Finally the growing Seaport District and ever active Logan Airport provide a rich set of destinations for Silver Line patrons who otherwise would remain isolated in the LRT option.

Many of the riders on the Silver Line corridor would be attracted from existing MBTA services, but some would be attracted from the auto mode, a key measure of transit effectiveness. Table 2 summarizes the power of these investment proposals to attract users away from the auto mode.

Table 2

2025 Regional Linked Transit Trips

	Linked Transit Trips	Transit Mode Share
No Build	966,050	7.27%
All recommended projects in Plan (excluding Phase III)	1,040,050	7.82%
All recommended projects in Plan (substituting Phase III with Washington Street LRT)	1,040,450	7.82%
All recommended projects in Plan (including Phase III but no Washington Street LRT)	1,045,250	7.86%

In 2025 there are predicted to be about a million linked transit trips (person trips, as opposed to boardings, or "unlinked" trips.) These million linked trips will represent a little over 7% of the region's trips. Completing all the transit improvements outside the Silver Line corridor envisioned in the current draft transportation plan would add almost 74,000 trips and increase the transit mode share about a half a percent to 7.82% of regional trips.

Investing in the Silver Line corridor would further increase transit mode share. The LRT upgrade would attract about 400 trips from auto, whereas the integrated Silver Line would generate about 5,200 new transit users, inching the transit mode share up to 7.86%. While the LRT upgrade would be a popular service, much of its ridership would come from existing local bus and Orange Line users. Most of the 102,000 riders on the integrated Silver Line would also be existing transit users, but 5200 would be new to transit. This is because the Silver

Line presents auto users an entirely new set of transit capabilities that are otherwise awkward or non-existent.

In conclusion, a rich set of residential, commercial, and regional destinations are located astride the Silver Line corridor. A major transit investment in any segment of this corridor can be expected to attract new users, as the recent growth in Washington Street ridership after completion of Phase I clearly indicates. The model predicts, and observation of development patterns corroborates, that uniting the current Washington Street and Piers Transitway branches in an integrated Silver Line will attract significantly more riders both from auto as well as other congested transit services than an isolated enhancement of either individual branch would.

TABLE H-2
Project Level Information for Roadway Projects

Project Name	Source	Description of Improvements	Anticipated Benefits
Crosby Drive (Bedford)	Model Data	Crosby Drive in Bedford will have a five-lane cross section with two travel lanes in each direction with a center turn lane for its entire length. The project also includes a slip ramp to Route 3 Northbound.	The v/c on Crosby Drive between Rte. 3 and Middlesex Turnpike improves from 0.29 to 0.22 from the No-build to the Build cases.
Middlesex Turnpike/Crosby Drive (Bedford and Burlington)	Middlesex Turnpike/Crosby Drive Transportation Improvements Project Volume 1A—DEIR VHB, Inc. March 1997 Model Data	Crosby Drive in Bedford will have a five-lane cross section with two travel lanes in each direction with a center turn lane for its entire length. The project also includes a slip ramp to Route 3 Northbound. Middlesex Turnpike will be widened by one travel lane in each direction with a sixteen foot raised median from Route 62 in Bedford to manning Road in Billerica.	The Crosby Drive analysis looked at two intersections with existing LOS F and increased their LOS by at least one grade to (D-C) in 2016. These intersections also reduced delay times by almost half. Middlesex Turnpike looked at 8 intersections. Of these 8 total, 7 intersections received LOS grades of F. Under the suggested alternative, these intersections increased their LOS by at least one grade (E-B) in 2016. Delay times were also reduced significantly. The v/c on Middlesex Turnpike South of Concord Road in Billerica improves from 1.47 to 1.22. The v/c also improves on Middlesex Turnpike North of Lexington Street in Burlington from 1.19 to 0.96.
I-95 (SB)/Dedham Street On- Ramp, Canton	Design study is complete; project due for construction in spring 2002 Model Data	Design and construct a SB on-ramp to I-95 from Dedham Street in Westwood. Westbound left turns will not be allowed onto the ramp. Ramp is scheduled for construction in spring 2002. This project provides direct access to I-95 south for traffic from the University Avenue development area in Westwood. Present access is through the Route 128 on-ramp at Blue Hill Drive, a very congested area.	About 1/3 of the Blue Hill Drive on ramp traffic to Route 128 SB is presently destined for I-95 south. The new on-ramp will improve congestion, queues and delays at the present on-ramp. The v/c on I-95 south of the I-93 interchange degrades from 1.07 to 1.17 from the No-build to the Build cases.

TABLE H-2 (CONT.)
Project Level Information for Roadway Projects

Project Name	Source	Description of Improvements	Anticipated Benefits
Route 2/Crosby's Corner, Concord and Lincoln	Draft EIR is complete; FEIR under FHWA review	Design and construct a fly-over bridge for the westbound direction of Route 2. Maintain local access by retaining (with improvements) the existing traffic signal at Route 2/2A/Cambridge turnpike Cutoff. Design and construct service roads between, approximately, Bedford Road and the traffic signal to allow for safe and effective local circulation and access. This is primarily a safety improvement but the project will have congestion and access benefits as well.	Significant safety benefits for Route 2/2A/Cambridge Turnpike Cutoff traffic. Improved Route 2 access and safety for Lincoln residents with homes along Route 2 between Bedford Road and the traffic signal.
Route 1/114 Corridor Improvements, Danvers and Peabody	CTPS and VHB planning and feasibility studies from the early and mid 90s Model Data	Design and construct a single-point diamond interchange at Route 114 and Route 1; improve access from Route 114 to I-95. Design and construct traffic management improvements along Route 114. Project will develop direct connections between Route 1, Route 114 and I-95 and improve traffic flow along Route 114.	Allows for direct access to I-95 from Route 1 and Route 114. Promotes safe and effective traffic flow in the area. The v/c on Rte. 114 between Watson Pkwy and the RR bridge improves from 0.70 to 0.52 from the No-build to the Build cases.
Telecom City (Malden, Medford, Everett)	Telecom City Report on Traffic Impacts and Mitigation Strategies Mystic Valley Development Commission November 1998	Reconstruction of Commercial Street at Medford Street in Malden to include new traffic signal equipment serving four 11-foot lanes plus 4-foot outside shoulders. In the southbound direction, the alignment of the existing reverse s-curve will be flattened. Commercial Street will include a northbound and a southbound lane separated by a median, which will be narrowed at several locations to accommodate a protected southbound left turn lane. A new road connects Corporation Way with Santilli Highway.	This project consists of 5 intersections that examine safety and traffic movement. All of the intersections studied showed no change in LOS grading. Some delay times were reduced with the projected implementation of the alternative suggested, however these were not significant enough to raise the intersection up or down a LOS grade. All data was from 2001.
Route 126/Route 135 Grade Separation (Framingham)	Route 126 Corridor Study Rizzo Associates, Inc. January 1997 Model Data	Construction of a below-grade underpass (one lane in each direction) on Route 126 beginning on the north at Park Street and on the south near Irving Street. It will pass beneath the MBTA rail crossing and Route 135. Travel lanes will also be maintained at grade at the Route 126/Route 135 intersection with an upgraded signal.	This project examines the major intersection of Rte. 126 and Rte. 135. Existing conditions (1996) showed LOS to be undefinable because v/c ratios and delay times being incalculable. The suggested alternative created calculable delay times showing LOS increasing by at least one grade (E-C) in 2020.

TABLE H-2 (CONT.)
Project Level Information for Roadway Projects

Project Name	Source	Description of Improvements	Anticipated Benefits
			The v/c on Rte. 126 north of Rte. 135 improves from 2.07 to 1.36 from the No-Build to the Build cases. The v/c on Rte. 135 west of Rte. 126 stays the same from the No-Build to the Build cases.
Route 140 (Franklin)	Model Data	Route 140 is to be widened from one lane in each direction to two lanes in each direction from I-495 to Garelick Farms. The alignment of Route140 will also be altered to accommodate an improved diamond interchange. The length of Route 140 affected is 1.2 miles.	The v/c on Rte. 140 North of I-495 improves from 1.26 to 0.86 from the No-Build to the Build cases.
Route 53 (Hanover)	Proposed Route 53 Phase 1B Transportation Improvements Project Volume 1 – DEIR March 1998 Model Data	Route 53 is widened from Mill Street to Pond Street from the existing 32-foot cross section to a 66-foot cross section with two lanes in each direction and a center turn lane. A 4-way intersection will be realigned to include Pond Street, Route 53 and Washington Street.	The study looked at three major intersections along Route 53. Existing conditions (1996) showed LOS as E and F grades. The future build alternative (2016) showed an increased LOS by at least one grade at each intersection. Delay times for the existing conditions were too high to be meaningful, however under the alternative, delay times were reduced to 6-7 second delays. The v/c on Rte. 53 between Mill Street and Pond Street improves from 0.86 to 0.41 from the No-build to the Build cases.
Route 53/228 (Hingham and Norwell)	Model Data	Widen Route 53 in Hingham to a three-lane cross section, to include a center turning lane. Also, widen the approaches at the Route 228 intersection and the High Street/Grove street intersection.	The v/c on Rte. 53/228 near the Norwell town line improves from 0.94 to 0.78 from the No-Build to the Build cases.
Needham Street/Highland Avenue, Newton and Needham	Newton study in progress; information is from staff involvement in project Model Data	Traffic management improvements, including the redesign and reconstruction of Needham Street as a four-lane road or a three-lane road to accommodate through and turning traffic in/out of commercial and other establishments. Project will reduce congestion and delay and improve safety.	Potential reductions in delay. The v/c on Needham Street south of Centre Street improves from 1.63 to 1.29 from the No-build to the Build cases.

TABLE H-2 (CONT.)
Project Level Information for Roadway Projects

Project Name	Source	Description of Improvements	Anticipated Benefits
Route 128 Transportation Improvement Project, Randolph to Wellesley	FEIR was completed in 1999; various elements are under design and construction	Design and construct a fourth lane and a shoulder on each barrel of Route 128 between Route 9 and Route 24 (13.7 miles). Design and construct a new interchange at Kendrick Street in Needham, including service roads between Kendrick Street and Highland Avenue. Modify several bridges to accommodate the widening of the main line. Project will improve safety and traffic flow along this section of Route 128.	Significant safety, traffic flow, and access improvements.
Bridge Street By-pass (Salem)	Salem-Beverly transportation project: Salem-Beverly Bridge, Bridge Street by-pass, and Bridge Street Reconstruction, Volume 1: Final Supplemental EIR Massachusetts DPW 1989	Construction of a new road along the North River from Veteran's Memorial Bridge to the vicinity of St. Peter Street and Bridge Street.	This study evaluates the creation of a new road. Existing conditions data looked at surrounding intersections only. The preferred alternative's LOS was found to have a grade of C or higher.
Bridge Street (Salem)	Salem-Beverly transportation project: Salem-Beverly Bridge, Bridge Street by-pass, and Bridge Street Reconstruction, Volume 1: Final Supplemental EIR Massachusetts DPW 1989 Model Data	Widening of Bridge Street from Flint Street to St. Peter Street to two lanes in each direction, including the reconstruction of the Washington Street rotary.	This project considered 5 intersections with Bridge Street. Existing LOS grades for all five intersections was F. Under the new design, all of the five intersections increased their LOS by at least one grade or better (E-B). The v/c on Bridge Street east of Washington Street improves from 1.12 to 0.54 from the No-build to the Build cases.
Route 18 (Weymouth)	Model Data	Widening of Route 18 to two lanes in each direction.	The v/c Rte. 18 south of Rte. 3 improves from 1.45 to 1.21 from the No-build to the Build cases.
Route 3 South Additional Lanes (Weymouth to Duxbury)	Model Data	Widen Route 3 from two lanes in each direction to three lanes in each direction from Weymouth to Duxbury. The project also involves design improvements to the interchange ramps at Route 53 in Hanover, Route 139 in Pembroke, and Route 228 in Rockland.	The v/c improves from 1.46 to 1.27 on Rte. 3 at the Hingham line in Weymouth. The v/c improves from 1.14 to 0.88 on Rte. 3 between Exit 11 and 12 in Duxbury.

TABLE H-2 (CONT.)
Project Level Information for Roadway Projects

Project Name	Source	Description of Improvements	Anticipated Benefits
Route 1A/Boardman Street Grade Separation	Status as of 1999 reporting by MassHighway Planning and Lower North Shore Transportation Improvements Study, CTPS, 2000	Design and construct an interchange to replace the existing traffic signal at Route 1A/Boardman Street. Project includes the relocation of Boardman Street in East Boston approximately 400 feet of the existing location. Additional design features may include Route 1A widening in the vicinity of the interchange. Project will improve traffic safety and traffic flow at this location.	Overpass will reduce congestion, and will provide for safe and efficient traffic flow through this location.
Rutherford Avenue (Boston)	Model Data	From City Square to the Tobin Bridge ramps, Rutherford is reduced from 10 lanes to 5 (3 southbound and 2 northbound). From the Tobin ramps to Bunker Hill Community College, southbound traffic is on the surface with intersection at Gilmore Bridge. Northbound traffic is in a one-way neighborhood street separated from the southbound lanes by a landscape buffer. Route 99 underpass remains. Surface intersections in Sullivan Square replace rotary. One lane of Rutherford is eliminated in each direction at Sullivan.	The v/c on Rutherford Avenue near City Square degrades from 0.82 to 1.41 from the No-build to the Build cases.
Route 1A/Chelsea Street Bridge Connection, Chelsea, Boston	Lower North Shore Transportation Improvements Study, CTPS 2000 Model Data	Design and construct a fly-over connection between Route 1A and the new Chelsea Street Bridge. To improve access, especially for trucks, between Route 1A, and Logan Airport, and the new Chelsea Street Bridge. Project will reduce congestion at Day Square in East Boston, which all Chelsea-bound traffic now uses.	Direct access for trucks and other traffic will eliminate circuitous travel, reduce cut-through traffic in Chelsea and East Boston, and improve congestion and safety. The v/c on Rte. 1A at the Chelsea city line improves from 1.62 to 0.88 from the No-build to the Build cases.

TABLE H-2 (CONT.)
Project Level Information for Roadway Projects

Project Name	Source	Description of Improvements	Anticipated Benefits
I-93/I-95 Interchange, Canton	University Avenue/I-95/I-93 Regional Traffic Study, CTPS, 1999; project to enter environmental stage soon Model Data	New I-95 northbound fly-over ramp New connection between Blue Hill Drive/University Avenue and I-93 southbound A dedicated traffic lane from Route 128 (I-93 southbound) to I-95 northbound. Closure of present Blue Hill Drive on ramp to I-95 southbound. Project will improve safety and traffic operations at this Interchange location.	Significant improvements in safety, especially truck roll-overs. Improvements in congestion and delay due to direct connections and additional capacity. The v/c on I-93 east of I-95 improves from 1.32 to 1.15 from the No-build to the Build cases. The v/c on I-95 south of the I-93 interchange degrades from 1.07 to 1.17 from the No-build to the Build cases.
I-95 (NB) Dedham Street Off-Ramp	University Avenue/I-95/I-93 Regional Traffic Study, CTPS, 1999 Model Data	Design and construct Dedham Street bridge as four lanes. Design and construct northbound off-ramp. Project will provide direct access to Canton and Westwood's University Avenue industrial area from I-95 northbound.	Eliminates circuitous travel through the town of Canton and Neponset Street interchange just south of Dedham Street by providing direct access from I-95. The v/c on I-95 south of the I-93 interchange degrades from 1.07 to 1.17 from the No-build to the Build cases.
Concord Rotary, Concord	CTPS Traffic Feasibility Study in progress	Grade separation of the Route 2, Route 2A, Barrett Mill Road, and Commonwealth Avenue traffic movements. Project will improve safety and reduce delays at this location	Significant improvement of safety and reduction in congestion.
I-495/I-290/Route 85 Interchange (Marlborough)	Model Data	Interchange improvements at the junction of I-495 and I-290 include the construction of a flyover ramp from I-495 northbound to I-290 westbound and a flyover ramp from I-290 eastbound to I-495 northbound.	The v/c on I-495 north of I-290 stays the same from the No-Build to the Build cases.
Route 1 Improvements, Malden and Revere	Lower North Shore Transportation Improvements Study, CTPS, 2000 Model Data	Reconstruct Route 1 between Route 60 and Route 99 to six lanes per direction; reconstruct the Lynn Street/Salem Street interchange and the Route 1/Route 99 interchange; reconstruct the railroad bridge just south of Lynn/Salem streets. Project will improve safety and traffic operations between Route 60 and Route 99.	Improvement in roadway's capacity to handle the additional traffic diverted to it because of better connections between Route 1A and Route 1. Significant safety improvements at Lynn/Salem streets interchange. The v/c on Rte. 1 north of the Rte. 60 interchange improves from 1.47 to 1.14 from the No-build to the Build cases.

TABLE H-2 (CONT.)
Project Level Information for Roadway Projects

Project Name	Source	Description of Improvements	Anticipated Benefits
I-93/I-95 interchange improvements, Woburn, Reading	MassHighway/CTPS Feasibility Study in progress Model Data	Reconstruct the interchanges to replace existing substandard loop ramps; eliminate weaving sections within the I-93/I-95 interchange, and between that and the I-95/Mishawan Street interchange. Project will improve safety and traffic operations at the I-93/I-95 and at the I-95/Mishawam Street interchanges	Improved safety and reduced delays at interchange. The v/c on I-93 north of I-95/128 in Woburn and I-93 south of I-95/128 in Stoneham stays the same from the No-build to the Build cases.
Mahoney Circle, Grade separation, Revere	MassHighway Feasibility Study is complete; DEIR in progress	Grade separation of Route 60 and Route 1A at Mahoney Circle. Project will improve safety and reduce congestion at the intersection of Route 1A with Route 60.	Significant improvement of safety and reduction in congestion
Route 1/Route 16 Interchange, Revere	Lower North Shore Transportation Improvement Study, CTPS, 2000	Construct a large radius on-ramp from Route 16 westbound to Route 1 northbound. Construct an off-ramp, with a traffic signal at its end, for the left turns from Route 1 southbound to Route 16 eastbound. This project will establish a direct connection between Route 16 east and Route 1 north, and a connection between Route 1 and Route 16 east.	Provide for a complete connection between Route 16 and Route 1. Reduce cut-through traffic on local streets.
Route 1A/Route 16 Interchange, Revere	Lower North Shore Transportation Improvement Study, CTPS, 2000 Model Data	Construct a partial cloverleaf interchange serving all movements. One new traffic signal will be installed at Route 16/Revere Beach Parkway providing for left turns between Route 1A southbound and Route 16 eastbound. Project will allow for a seamless, direct connection between Route 1 and Route 1A through Route 16,and improve safety and reduce congestion at Route 1A and Route 16.	Along with the Route 1/Route 16 ramps above, it provides for an improved connection between Route 1 and Route 1A. It reduces congestion in Revere. The v/c on Rte. 16 south of the Rte. 1A interchange stays the same from the No-build to the Build cases.

TABLE H-2 (CONT.)
Project Level Information for Roadway Projects

Project Name	Source	Description of Improvements	Anticipated Benefits
I-93/Mystic Avenue Interchange, Somerville	Mystic Avenue/Route 28//I-93 Interchange Improvement Study, CTPS, 1994 Model Data	At Route 38, place southbound direction of Route 28 in an underpass thus eliminating the traffic signal at Route 38/Route 28 southbound intersection. Project will improve operations and safety in the area or Route 38/Route 28 and I-93 ramps.	Improvement to traffic operations and delays The v/c on I-93 at the Medford town line stays the same from the No-build to the Build cases.
I-93/Ballardvale Street Interchange (Wilmington)	I-93/Route 125/Ballardvale Street Interchange Reconstruction & Intersection Improvements, Wilmington, Mass. – FinalEIR/EA MassHighway Department July 2000 Model Data	Reconstruction of the existing ramps at I-93 and the construction of new ramps to I-93 in the northeast and southeast quadrants. Route 125 will also be reconstructed in the vicinity of the interchange and the intersection between Route 125 and Ballardvale Street will be altered.	This study looked at three intersections at I-93/Route 125 and Ballardvale Road. Existing conditions for LOS overall were high on the I-93 ramps (A & B category), yet low for the Ballardvale intersection (F category). This project's alternative design would focus on realignment of all three intersections for increased safety measures and traffic flow, as well as an increased LOS grade to C for the Ballardvale intersection. The v/c on I-93 south of Ballardvale Street stays the same from the No-build to the Build cases.
East/West Connector Road, Canton	Proposed East/West Connector Road, VHB Traffic Study, February 1997	Construct a connector road between Pleasant Street and Turnpike Street (Route 138). Project will eliminate truck traffic from residential streets and direct it to Route 138.	Reduction in truck traffic on residential streets
I-495/South Street New Interchange (Hopkinton)	Model Data	Reconstruction project aligns the I-495 southbound exit with South Street to eliminate the need for EMC-bound vehicles to make a left to cross eastbound South Street traffic.	The v/c on I-495 north of South Street stays the same from the No-build to the Build cases.
Back Bay Turnpike Exit (Boston)	Model Data	Construction of a new slingshot ramp in the Fenway section of Boston that will allow motorists in the Back Bay area of Boston to access the Massachusetts Turnpike eastbound. Currently, motorists in the Back Bay must take local streets through downtown to access South Boston or the tunnels to the airport. This ramp would be in the westbound direction of the Mass Pike at a point just west of Massachusetts Avenue. Traffic would then	The v/c on I-90 in the Back Bay stays the same from the No-build to the Build cases.

TABLE H-2 (CONT.)
Project Level Information for Roadway Projects

Project Name	Source	Description of Improvements	Anticipated Benefits
		change directions in a slingshot ramp built above the highway between Charlesgate and Massachusetts Avenue.	
New Boston Street Bridge (Woburn)	Model Data	Construct a bridge on New Boston Street at the northern end of the Woburn Industrial Park where New Boston Street crosses the MBTA Lowell Branch commuter rail line.	Calculated data shows an extreme jump in v/c data. The assumption is that this new bridge connection will be used as a major travel route that is currently not in use.
Burgin Parkway (Quincy)	Model Data	Build a flyover to separate Burgin Parkway from Centre Street and improve access from Interstate 93 to the Crown Colony Area	The v/c on Burgin Parkway north of Center Street improves from 1.47 to 0.93 from the No-build to the Build cases.
Route 128 Capacity Improvements (Beverly to Peabody)	Model Data	Add one general purpose lane in each direction from Beverly to Peabody.	The v/c on Rte. 128 in Beverly at the Danvers town line improves from 1.15 to 0.95 from the No-build to the Build cases.
Route 128 Capacity Improvements (Lynnfield to Reading)	Model Data	Add one general purpose lane in each direction from Route 28 in Reading to Route 1 in Lynnfield.	The v/c Rte. 128 in Peabody at the Lynnfield town line improves from 1.42 to 1.27 from the No-build to the Build cases.
Rte. 9/Rte. 126 Interchange (Framingham)	Model Data	Improve the existing interchange at Route 9 (Worcester Road) and Route126 (Concord Street). The Route 126 bridge is listed in the Statewide Road and Bridge list and its reconstruction would be a major element of this project.	The v/c on Rte. 9 west of 126 stays the same from the No-build to the Build cases.

TABLE H-3
Project Level Information for Transit Projects

Project Name	Source	Project Description	Anticipated Benefits				
			Fore-cast Year	Daily Rider-ship	New Riders (Auto diversions)	Travel Time Savings (hrs)	VMT reduction (Kg)
Arborway Green Line	Ridership forecasts for the Arborway Extn, CTPS study, May 2001.	Restoration of Green Line E branch service from Heath Street to Arborway along S. Hungtington Ave, Center St and South St.	2000	34,850	0	n/a	0
Russia Wharf Terminal	n/a	Construction of a docking facility and passenger shelter at Russia Wharf near South Station. The facility will provide ferry service between South Station and Charleston Navy Yard.		n/a	n/a	n/a	n/a
Silver Line, Phase B	Regional Transportation Plan modeling results, Sept 2001	Construction of a new tunnel from South Station to Boylston Station thorugh Chinatown and connecting the transitway service with Washington Street service.	2025	92,750	n/a	n/a	n/a
New Bedford/Fall River Extension	Ridership forecasts update for the New Bedford/Fall River Study, CTPS rep., Aug. 2000	Extension of the Stoughton commuter rail line through Easton, Taunton and Berkley, then branching into two lines towards Fall River and New Bedford.	2010	4,300	2,950	n/a	198,200
Greenbush Line	Impact of Greenbush Service-CTPS analysis 1996	Extension of the commuter rail line from Braintree to Greenbush in Scituate via stops in Weymouth Landing, East Weymouth, West Hingham, Nastasket Junction and North Scituate.	2010	7,800	4,700	n/a	86,160
Medford Hillside Extension	Program for Mass Transportation (PMT), CTPS rep., Dec. 1993	Extension of Green Line service from a relocated Lechmere station to Medford Hillside via new stations at Washington St, School St, Lowell St and Ball Sq.	2020	11,560	3,660	1,160	38,800
Fairmount Line Upgrade	Regional Transportation Plan modeling results, Sept 2001	Upgrade of service on the Fairmount commuter rail line including 15-min headways, extended hours of service, refurbished existing stations and the construction of 5 additional stations.	2025	17,400	n/a	n/a	n/a

* increase in commuter rail ridership
x - unchanged

TABLE H-3 (CONT.)
Project Level Information for Transit Projects

Project Name	Source	Project Description	Anticipated Benefits				
			Fore-cast Year	Daily Rider-ship	New Riders (Auto diversions)	Travel Time Savings (hrs)	VMT reduction (Kg)
Red-Blue Connector	Program for Mass Transportation (PMT), CTPS rep., Dec. 1993	Extension of the Blue Line from Bowdoin Station to Charles Station of the Red Line, providing a transfer between the Red and Blue lines.	2020	19,200	4,970	2,175	30,765
North - South Rail Link	North-South Rail Link Study, CTPS rep., Dec. 1996	Construction of a new tunnel from South Station to North Station under the Central Artery alignment and through-routing north and south side commuter lines.There would be one interim station in the vicinity of Aquarium Station. The Rail Link would allow MBTA commuter trains and Amtrak intercity trains to travel from one side of Boston to the other without the need for through passengers to transfer trains.	2020	58850*	21,350	n/a	382,000
Commuter rail extension to Marlborough	Commuter Rail extension to Marlborough, CTPS rep., Nov. 2001	This project involves a 9.5 miles extension of the Framingham commuterrail line to Route I-495 near the Southborough-Marlborough border using the Conrail Fitchburg Secondary Track		2,730	1,480	287	n/a
Blue Line extension to Lynn	Program for Mass Transportation (PMT), CTPS rep., Dec. 1993	This project involves extending the Blue Line four miles from its current terminus at Wonderland to Central Sq in Lynn. There will be two intermediate stations one in northern Revere and another at West Lynn.	2020	11,340	4,860	893	49,440
Urban Ring Phase I	Ridership Forecasting Urban Ring MIS, CTPS rep., Aug. 2001	Urban Ring Phase I includes modifications to existing bus routes, new express bus routes and addition of new crosstown routes.	2025	42,950	6,600	3,590	14,150

* increase in commuter rail ridership
x - unchanged

TABLE H-3 (CONT.)
Project Level Information for Transit Projects

Project Name	Source	Project Description	Anticipated Benefits				
			Fore-cast Year	Daily Rider-ship	New Riders (Auto diversions)	Travel Time Savings (hrs)	VMT reduction (Kg)
Urban Ring Phase II	Ridership Forecasting Urban Ring MIS, CTPS rep., Aug. 2001	Phase II includes seven BRT routes serving imporant activity centers along the Urban Ring corridor. A number of non-redundant crosstown and express bus routes are also included.	2025	106,000	15,000	17,120	52,500
Urban Ring Phase III	Ridership Forecasting Urban Ring MIS, CTPS rep., Aug. 2001	In Phase III, a new Urban Ring rail system between the Orange Line at Assembly Sqr and the former Orange Line terminus at Dudley Sqr is added in addition to the service proposed in Phase II.	2025	282,500	46,500	49,185	355,200
New commuter rail station at Littleton	Ridership and Parking Demand Forecasts for relocated Littleton Station, CTPS memorandum, Sept 1997	The existing commuter rail station will be relocated to a new site off of Route 2 and access to this station will be provided by means of a new interchange between I-495 and Route 2. The new station will have 500 spaces.	2010	200	n/a	n/a	n/a
Planned T parking	n/a	This project involves adding 14,350 new parking spaces at selected MBTA stations where parking shortfalls are projected.	n/a	n/a	n/a	n/a	n/a
Assembly Sq Orange Line Station	n/a	New Orange Line station located at the edge of the Assembly Sq development area.	n/a	n/a	n/a	n/a	n/a

* increase in commuter rail ridership
x - unchanged

TABLE H-3 (CONT.)
Project Level Information for Transit Projects

Project Name	Source	Project Description	Anticipated Benefits				
			Fore-cast Year	Daily Rider-ship	New Riders (Auto diversions)	Travel Time Savings (hrs)	VMT reduction (Kg)
LRT on Washington St	Supplemental ENF, MBTA rep. 1990	Convert bus rapid transit Silver Line service to light rail from Dudley Sq in Roxbury to downtown Boston. There would be five stations along the alignment. LRT vehicles along Washington St would merge with Green Line service at Boylston and would turn at Park St or Gov. Ctr.	2010	10,350	n/a	n/a	n/a
Commuter rail extension to Millis	Commuter Rail Extension to Millis Feasibility Study, CTPS rep., March 1998	This project involves a 6.9 mile extension of the Needham Line from Needham Junction to Medfield Junction via the Dover Secondary Track and a 2.2 mile extension to Millis via the Clicquot Secondary Track.		1,360	1,185	n/a	n/a
Airport/commuter rail connection @ Revere	Ridership Forecasts for the Wonderland Connector Study, CTPS Technical Rep., July 1998	The project involves the relocation of Wonderland station on the Blue Line to the west side of Route 1A. This allows for the construction of a new transfer station for commuter rail service on the Newburyport/Rockport line and the MBTA's Blue Line. Passengers from North Shore would be able to transfer across platform from inbound commuter rail trains to inbound Blue Line service to Logan Airport	2010	3,700	1,500	n/a	n/a
Additional buses	Regional Model	Addition of 100 buses on existing routes where current capacity shows a possible need for additional service.	2025	321,300	n/a	n/a	n/a

* increase in commuter rail ridership
x - unchanged

APPENDIX I

SUPPLEMENTAL INFORMATION FOR THE AIR QUALITY CONFORMITY DETERMINATION

TABLE I-1
Status Report on the 1979 State Implementation Plan TCMs

Transportation Control Measures in the 1979 SIP	2004 Transp. Plan	Status in 2003
MBTA Plant Improvements - Green Line improvements - station modernization (Park, State, Washington) - miscellaneous plant improvements	X	implemented and ongoing completed - other stations now being modernized (Blue Line) implemented and ongoing
MBTA Vehicle Fleet Improvements	X	implemented and ongoing
Commuter Rail Improvement Program	X	implemented and ongoing
MBTA Park 'n' Ride Program - Alewife, Quincy Adams, & Braintree - Forest Hills -Mishawam	 X X X	 complete complete complete
Reduction and Relocation of bus stops	X	implemented and ongoing
Urban Systems (TOPICS-type) Program	X	implemented and ongoing
Off-Street Parking Freeze - City of Boston		implemented and ongoing
Off-Street Parking Freeze - City of Cambridge		implemented and ongoing
Off-Street Parking Freeze - Logan Airport		implemented and ongoing
Public Information/Promotion - bus stop sign replacement - information kiosks		 implemented and ongoing implemented and ongoing
Commuter Boat Service Demonstration (Hingham to Boston)	X	regular contract service ongoing
Red Line Extension from Quincy to Braintree	X	completed & opened for service in 1980
Red Line Extension from Harvard to Alewife	X	completed & opened for service in 1985
Orange Line Extension from South Cove to Forest Hills	X	completed & opened for service in 1987
Downtown Crossing Pedestrian Zone		implemented & ongoing
Boston Resident Parking Sticker Program		implemented & ongoing
Cambridge Resident Parking Sticker Program		implemented and ongoing
MDC On-Street Parking Ban		ongoing
MBTA Pass Program		implemented and ongoing
Masspool, Inc. (CARAVAN)	X	ongoing
Extension of I-93 HOV Lane to Charlestown	X	complete
MBTA Suburban Bus Program	X	ongoing
State/Local Financing Net Cost of T-Service - review of fare changes shall involve the public and consider environmental impacts		ongoing
Bicycle Racks at transit stations		ongoing
MDPW (MHD) Bikeway Program		ongoing
Variable Work Hours Program		ongoing
MBTA Idling Reduction Program		implemented and ongoing
Right-Turn on Red		implemented and ongoing
Charlestown Bus Garage		completed 1979
Bus Immersion Heater Program		discontinued, new bus purchases subject to increasingly stringent emission standa
Improved Service Delivery - priority signals, automated fare collection, scheduling and routing modifications, & passenger shelters	X	implemented and ongoing
Improved Service Evaluation		ongoing

TABLE I-2
Status Report on the 1982 State Implementation Plan TCMs

Transportation Control Measures in the 1982 SIP	2004 Transp. Plan	Status in 2003
Improved Public Transit		
- Downtown Private Bus Parking		- ongoing
- Insurance Discounts for Private Bus Riders		- discounts for MBTA pass holders
- Improved Logan Bus Service		- ongoing
- Newton Rider Bus Service		- discontinued, substituted with MBTA ser
- Vehicle Replacement & Modernization		- completed & ongoing
Area-Wide Ridesharing Programs	X	ongoing
On-Street Parking Controls		
- Resident Parking Sticker Programs		
- Boston Tow and Hold Program		
- Cambridge Zoning Ordinance Change		ongoing
Pedestrian Malls - Auto Restriction Zones		ongoing in Salem, discontinued in other cities; substituted with other program.
Employer-Based Ridesharing Programs		
- Airport Ridesharing Program		ongoing
Road Pricing to Discourage Single-Occupant Vehicles		
- Mass Pike, Callahan/Sumner Carpool Incentive Program		ongoing
Interstate 93 Southbound HOV Lane	X	implemented, ongoing
Traffic Flow Improvements - Urban Systems Projects	X	ongoing
Fringe Parking/Park and Ride Lots	X	ongoing
Long -Range Public Transit Improvements		
- Private Carrier Bus Leasing Program		ongoing
Bicycle Facilities		
- Long distance bike facilities		- implemented
- Bicycle travel on the MBTA		- ongoing
- Bicycle Storage Facilities		- installed at South Acton Commuter Rail Station

TABLE I-3

Status Report on the Central Artery State Implementation Plan TCMs

Central Artery Mitigation Study Projects	2004 Transp. Plan	Status in 2003
South Station Bus Terminal	X	Opened for operations on October 28, 1995
South Station Track #12	X	Operating, effective Dec. 20, 1995
Ipswich Commuter Rail extension to Newburyport	X	Revenue service began October 1998
Old Colony Commuter Rail Extension	X	Full weekday service implemented Plymouth and Middleborough Lines in December 1997 Greeenbush included in ACO, substitution submitted to DEP.
Framingham Commuter Rail Extension to Worcester	X	Interim service started in September, 1995
20,000 new park and ride and commuter rail station parking spaces	X	Completed – 2001
Blue Line Platform lengthening and modernization	X	Five stations have been modified for 6 car trains. Work continues on downtown stations. Consent order establishes a new deadline of 12-31-04. The MBTA notified DEP that it will be completed in 2005.
Green Line Arborway Restoration	X	Infeasibility study not accepted by DEP. MBTA going forward with construction of project.
South Boston Piers Electric Bus Service	X	Petition for delay to 12/31/03 accepted by DEP
Green Line Extension to Medford Hillside (Tufts)	X	Scheduled completion 2011
Blue Line connection from Bowdoin Station to Red Line at Charles Station	X	Scheduled completion 2011
Silver Line (Washington Street Replacements)	X	Bus rapid transit with 40 foot CNG buses operating. Service with 60 Foot CNG buses by September 2003.
Alternative Fuel Buses	X	MBTA has advertised a procurement for 418 alternative fuel vehicles, all of which have purchase orders.
South Boston Parking Freeze		Regulation adopted in 1993, inventory and plan is pending with DEP.
I-93 Southbound HOV Lane to Mystic Avenue	X	Completed
I-93 HOV Lane from Mystic Avenue to Route 128		Further study required
I-93 (SE Expressway) HOV Lane from I-90 to Route 3	X	Opened November, 1995
Development of issues to be addressed in the Program for Mass Transportation	X	PMT adopted 1994, new PMT adopted May 2003
Toll Pricing feasibility to Logan Airport		in progress
Feasibility of toll booth on Route 1A		completed June, 1994
Feasibility of water shuttle between Boston and North Shore	X	completed 1991
Transit improvements study - PMT	X	New PMT adopted May 2003
Feasibility of rail connection between South Station and Logan Airport		final report issued July, 1994
Expansion of size and number of Logan Express service parking and transit facilities	X	completed June, 1994
Expanding high occupancy vehicle lanes and services within Logan Airport	X	completed June, 1994
Connecting circumferential transit facilities and radial transit services	X	interim cross-town service started September 1994; Urban Ring Study underway
Upgrade rail service to NY; Worcester & Springfield, MA.; Hartford, CT.; and Portland, ME.	X	in progress
Examine indexing of transit fares	X	ongoing, indexing issue discussed as part of annual fare review.
Feasibility of HOV Lanes on I-90 between I-93 and I-95	X	completed 1994
Urban Ring	X	ENF and MIS submitted July 2001. MEPA certificate issued October 2001. Draft EIR by December 2003.

TABLE I-3 (CONT.)
Status Report on the Central Artery State Implementation Plan TCMs

An Administrative Consent Order (ACO) was signed by EOTC and the Executive Office of Environmental Affairs (EOEA) on September 1, 2000. The ACO reconciles and adjusts dates of completion for all projects required as mitigation for the Central Artery that have not been completed to date. This conformity determination includes all projects that are part of the ACO.

TABLE I-4
Categorically Exempt Projects

Certain transportation projects eligible for federal funding have no impact on regional emissions. These are 'neutral' projects that, because of their nature, will not affect the outcome of regional emissions analyses and add no substance to those analyses. As a result, DOT and EPA have agreed that such projects may be excluded from the regional emissions analyses required in order to determine conformity of TIPs and Plans. Projects eligible for this treatment are as follows:

Safety

Railroad/highway crossing

Pavement marking demonstration

Hazard elimination program

Safer off-system roads (non-federal-aid system)

Emergency relief (23 U.S.C. 125)

Also specific projects for:

- intersection channelization projects
- shoulder improvements
- truck size and weight inspection stations
- safety improvement program
- intersection signalization projects
- railroad/highway crossing warning devices
- changes in vertical and horizontal alignment
- increasing sight distance
- guardrails, median barriers, crash cushions
- pavement resurfacing and/or rehabilitation
- widening narrow pavements or reconstructing bridges (less than one travel lane)
- noise attenuation
- fencing
- skid treatments
- safety roadside rest areas
- other traffic control devices
- truck climbing lanes
- lighting improvements
- adding medians

TABLE I-4
Categorically Exempt Projects (continued)

Mass Transit

Purchase of office, shop, and operating equipment for existing facilities

Purchase of operating equipment for vehicles (e.g. radios, fareboxes, lifts, etc.)

Construction or renovation of power, signal, and communications systems

Operating assistance

Rehabilitation of transit vehicles

Reconstruction or renovation of transit buildings and structures (e.g. rail or bus buildings, storage and maintenance facilities, stations, terminals, and ancillary structures)

Construction of small passenger shelters and information kiosks

Rehabilitation or reconstruction of track structures, track, and trackbed in existing rights-of-way

Noise attenuation

Purchase of support vehicles (e.g. autos, vans)

Purchase of new buses and rail cars to replace existing vehicles or for minor expansion of the fleet to provide new service

Construction of new bus and rail storage and maintenance facilities which meet the conditions for categorical exclusion specified in 23 CFR 771

Air Quality

Continuation of ride-sharing and van-pooling promotion activities at current levels

Bicycle projects

Pedestrian facilities

Other

Engineering to define elements of proposed action or alternatives to assess social, economic, and environmental effects

Advance land acquisitions as prescribed in 23 CFR 771

Acquisition of scenic easements

Plantings, landscaping, etc.

Sign Removal

TABLE I-5
Summary of Off-Model Emissions For MBTA Buses, Commuter Rail, and Commuter Boat Within and Surrounding the Boston MPO Area
(All Emissions in Tons/Summer Day)

	VOC Emissions		
	2007 tons	2015 tons	2025 tons
Buses	0.047	0.036	0.050
Commuter Rail	0.362	0.314	0.273
Commuter Boat	0.431	0.431	0.431
Pike Park & Ride	-0.026	-0.012	-0.009
TOTAL	0.814	0.768	0.745

	NOx Emissions		
	2007 tons	2015 tons	2025 tons
Buses	2.382	2.260	2.417
Commuter Rail	6.532	5.573	4.824
Commuter Boat	0.815	0.815	0.815
Pike Park & Ride	-0.059	-0.020	-0.009
TOTAL	9.670	8.627	8.047

Table I-5 provides supplemental emissions information on activities that occur across MPO boundaries in Eastern Massachusetts. CTPS has the capability of calculating these emissions and has provided this information for the Boston MPO Region. These emissions have not been included in the Plan analyses for any other MPOs in Eastern Massachusetts. Emissions have been provided for the commuter rail, commuter boat, and the MBTA bus activities. The emissions from Table I-5 were combined with the emissions from the ten MPOs in Eastern Massachusetts.

APPENDIX

J

PUBLIC COMMENTS

Public involvement in the development of this Regional Transportation Plan followed the procedures set forth in the Boston Region MPO's adopted "Public Participation Process for Planning Documents in the Boston MPO," which are designed to ensure early and continued public involvement in the transportation planning process. In the winter of 2003, as a first step in developing this Plan, the Regional Transportation Advisory Council and the Metropolitan Area Planning Council (MAPC) subregional groups began reviewing projects for inclusion in the Plan. The Advisory Council remained active throughout the Plan's development. The MPO participated in eight transportation visioning sessions that were sponsored by MAPC and held at the MAPC subregional meetings in May and June 2003. Also in June, at four MPO-sponsored workshops that were held in Boston, Framingham, Quincy, and Wakefield, the MPO asked for review of projects proposed during the visioning sessions and solicited additional project ideas.

Upon the approval of a circulation draft Transportation Plan by the MPO's Transportation Planning and Programming Committee on July 24, 2003, notice of its availability and of the opportunity to review and comment on it through August 27, 2003, was published in the *Boston Globe*, the *Boston Metro*, the *Bay State Banner*, and *TRANSREPORT*, the MPO's newsletter. In addition, notices were sent to the MPO's list server and press releases were sent to local newspapers. The draft document was distributed to the chief elected officials, highway department heads, and planning directors of the region's 101 municipalities and to the Regional Transportation Advisory Council, the Boston MPO Environmental Justice Committee, the MAPC subregional groups, and state legislators. Copies of the document were available for viewing at all municipal offices and public libraries in the region and for downloading from the Boston MPO Web site at www.bostonmpo.org.

During the public review period, two more MPO-sponsored workshops were held in Waltham and Mattapan, with the support of members of the Boston MPO Environmental Justice Committee, to solicit comments. In addition, an all-day open house was held at the MPO's office in Boston.

After the close of the review period, a summary of the more than 500 written comments received and their disposition was prepared and presented to the Transportation Planning and Programming Committee prior to requesting its recommendation on MPO endorsement. The summary is provided in this appendix. The full text of all written comments and copies of the MPO's letters of response are available for perusal at the Central Transportation Planning Staff.

Summary of Comments Received on the Regional Transportation Plan

As part of its public comment process, the MPO conducted four workshops and an open house to involve residents in the review of the Regional Transportation Plan (Plan). The MPO worked with co-sponsors to increase participation, advertised the review process widely, and promoted participation from members of the general public. Since January 2003, the Regional Transportation Advisory Council has discussed the document frequently and convened a committee to provide input and comment. The MAPC Subregions also provided input at several meetings during the year, and, in conjunction with the MPO, sponsored visioning sessions in each subregion. In addition, the MPO held four workshops in May and June to generate input for the development of the Plan prior to its circulation.

The following are summaries of the written comments received during the public comment process. Summaries of MPO workshop discussions are also included. The MPO thanks the makers of these comments and each will receive a written response.

Name	Affiliation	Comment	MPO Action
Comments on the Regional Transportation Plan and General Comments			
Richard Reed, Town Administrator	Town of Bedford	Request that the low rating on land use for the Middlesex Turnpike Improvements and for the Crosby Drive Improvements Projects be increased from low to at least medium because the projects support planned economic development in the area. The area served by these projects has been designated (Master Plan) for concentrated development (industrial and research park), and is a major employment center (40,000-50,000 jobs). The area is also a state Economic Opportunity Area relying on the roadway improvements. Hazardous waste sites will be cleaned up. An extensive system of sidewalks linking with other activity areas will be constructed. There is bus service. The projects also relate to Route 3 improvements. There are no residences in the vicinity.	Included in Plan
John J. Brothers	Boston resident	Supports the Fairmount Line. Increase the frequency of service and the number of stations. The Plan does not recognize the Environmental Justice neighborhoods along the Warren Street/Blue Hill Avenue axis. Light rail replacement service was promised for Blue Hill Avenue. Do not extend the Silver Line down Blue Hill Avenue to Mattapan Square; already too congested	Fairmount Line included in Recommended Project List in Plan, Blue Hill service not included. Warren Street/Blue Hill Avenue part of an EJ target community.
Betsy Miessner	WATCH CDC, Fernald Working Group	Current projections for new housing are significantly greater than recent land use projections due to development and institutional development. Resulting population increases will need transit. Waltham currently needs more transit; it should be a priority over highway expansion; direct connections to Boston's bus and subway system (buses to Alewife, to Riverside, to Waverly Square). Local impact fees, matched by state and federal funds, should fund public transit and sidewalks. Restore the Waltham City Bus, particularly the Trapelo route; improved public input would make it more successful. Zipcar would be useful; public funding should support parking for this program. The MPO should conduct a study of transportation needs (access to the four large, former state and county facilities being redeveloped for re-vamped institutional uses with at least 1,000 residential units; and 2,000 new housing units) and develop a transit plan to address them.	Suburban mobility included in Plan. Some comments not applicable to the Plan – for future consideration in other certification documents.
Domenic Stagno		Supports the North/South Rail Link. In the meanwhile, use energy-efficient buses to make the connection. Important for tourism. Above-ground stations should have	Included in Universe of Projects in Plan

Name	Affiliation	Comment	MPO Action
		enclosed and heated waiting rooms.	
Michelle Ciccolo, Assistant Town Administrator	Town of Hudson	Correct the project description of the Hudson/Marlborough I-495/I-290/Route 85 Interchange project (Appendix D-2, D-3, and Table 5-3). It is a Hudson and Marlborough project and it includes widening and intersection improvements on Route 85. This project will provide important relief for the chronic congestion on the roadway and support commercial activity.	Included in Recommended Project List in Plan
Bryce Nesbitt		Hopes to strengthen commitments to alternative transportation. Update Figure 2-5 to show current bicycle facility projects. Change treatment of on and off road facilities and the figure title. Page 2-20, include suggested language to reflect that Boston has the potential for a significant network of trails. Consider moving the discussion of the Claire Saltonstall route to a separate section.	Included in Plan
Jarrett T. Barrios, State Senator	Middlesex, Suffolk, and Essex District	The Urban Ring should be among the top priorities in the Plan. Give high priority to Rutherford Avenue Corridor improvements. The Urban Ring will have tremendous positive impacts for many neighborhoods and communities, including Environmental Justice elements. It would provide transit to under-served, low-income communities (Everett and Chelsea) and reduce travel times. Continue to pursue the Green Line to Medford Hillside through Somerville. This will provide needed transit to these neglected areas, improve air quality, alleviate traffic, and stimulate economic benefits to Union Square and nearby neighborhoods.	Urban Ring I & II, Green Line to Medford Hillside, and Rutherford Avenue included in Recommended Project List in Plan.
Anne Fanton	Central Artery Environmental Oversight Committee	Correct all references to the Russia Wharf Terminal and Service; it is required not as a SIP commitment, but as a condition of DEP's approval of the Preconstruction Certification of the CA/T Project's Ventilation System and the Consolidated Waterways Permit. It is to be funded by the Central Artery Project. Clarify the project description; is the project the terminal or ferry service? Clarify criteria for selecting legislatively-funded projects. Forward funding language only applies to three of the five. Clarify language in the Air Quality Conformity Determination. There are a number of transit TCM SIP commitments that have not been completed besides the Greenbush and the Arborway.	Included in Plan
Jim Haskell	Salem Harbor Comm. Dev. Corp.	Provides specific guidance for correcting the Salem Profile of Communities of Concern.	Included in Plan
Name unreadable	Somerville resident	Supports subway/rail connection at Union Square. It is important for business, commuting, and air quality. It would make it easier for my friends to visit. All improvements to transit are welcome.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Ivey St. John, Joel and Sheila Kessel, Rosemary Kverek, and Michele Simons, Kosmos Kalliarrekos of the Parthenon Group (in 5 letters)	Boston (Charles-town) residents	Supports the two alternatives for Rutherford Avenue/Sullivan Square improvements developed in Boston's New Rutherford Avenue Corridor Study. They would improve pedestrian and traffic safety (110 accidents in 2 years), increase land for development and green space. In light of the area's upcoming development, traffic improvements at Sullivan Square are needed for everyone's safety. They have community support.	Included in Recommended Project List in Plan
Sheila Grove	Boston resident	Supports: completion of the Silver Line, Phases I, II, and III (with extension to Dorchester), and the Urban Ring. Asks that funding for Arts on the Line be continued (makes stations interesting).	Silver Line I, II, and III and the Urban Ring included in Recommended Project List in Plan

Name	Affiliation	Comment	MPO Action
Ron and Ruthann Swenson	Boston (Charles-town) residents	Include the Rutherford Avenue/Sullivan Square project in the Plan and add them to the FY 2004 UPWP and TIP and fund an environmental impact study. The community supports the projects. The traffic problem needs to be resolved.	Included in Recommended Project List in Plan
Roma Goodlander, Project Manager	WATCH	Continue to support suburb to suburb transit. MassBay Community College is virtually inaccessible to Waltham residents who don't have a car because the town doesn't have cross-town transit service.	Suburban mobility included in Plan
Jason English	Somerville resident	Extend the Green Line to Union Square. Make Somerville bike- and pedestrian-friendly (extend existing and build new paths). Extend Orange Line to Assembly Square. Add rail-based transit on the Lowell Line between Inner Belt and Tufts. Improve the Route 28 and 99 corridors (air quality, livability). Require projects to improve community character.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Individual bike facilities would be considered in TIP process.
Srdjan S. Nedeljkovic, M.D.	Newton resident	Add to the Plan and give a high priority: Extending Green Line light rail from the "D" Line to Needham Heights commuter rail station (using existing rail bed, would provide transit options, generate high ridership from dense residential areas, stimulate economic growth as is near the Needham Industrial Park and Business Center and provide reverse commute options for EJ communities, low cost/trip, and other benefits). It is a good fit with Plan policies. The PMT analysis of this project's cost and ridership were flawed. (analysis attached) Urban transit policy should promote projects that provide access to large concentrations of people and businesses.	Included in Universe of Projects in Plan
Andrea Yakovakis	Somerville resident	Fully fund and make top priority: the Green Line Extension to Union Square (existing bus service is unreliable, would stimulate jobs, generate revenues); Orange Line Station at Assembly Square (would stimulate economic development); improve Route 28 (better manage traffic). Somerville deserves better public transportation. It has environmental impacts. These projects would improve quality of life and health.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied –included in UPWP.
Penn Loh, Executive Director	On the Move Coalition	The current planning process is not comprehensive and does not meaningfully involve the public. (Planning is visionless, not comprehensive, and designed to justify projects; will not achieve environmental justice and smart growth.) The public participation process needs to be improved drastically. (Process is confusing and obtuse. Layers of planning are not coordinated. What effect do public comments have on the decisions?) Representation on the MPO needs to be expanded to include transit riders, low income, and communities of color. Planning process should be restructured to warrant recertification. Regarding Environmental Justice: The MPO EJ Committee failed to address environmental justice and engage low income and communities of color: EJ Committee did not have opportunity to provide input on specific projects; the MPO has not completed its EJ scope of work (develop measures to address needs and gaps); the systemwide analysis is not an adequate tool for assessing environmental justice transportation needs (should look at where people want to go); criteria for assessing transit are skewed against EJ. The MPO should: complete assessment of benefits and burdens and develop a list of recommended measures to meet needs based on EJ Committee input; incorporate these into Plan projects or explain why not; develop formal EJ/Equity criteria for prioritizing projects; develop a policy on gentrification (coordinate with housing); improve transit monitoring (identify inadequacies, collect and compare performance, comfort, crowding and load factor data across all modes). We support several projects in the Plan: Arborway, Fairmount Branch, Assembly	Plan process comments will be considered in the development of the next Plan. Environmental Justice comments to be addressed in the MPO's continuing environmental justice efforts. Arborway, Fairmount Branch, Assembly Square station, Suburban Mobility, and 100 Buses included in the Plan.

Name	Affiliation	Comment	MPO Action
		Square station, Suburban Mobility, 100 Buses (expedite/in 5 years, buses serving EJ communities are most crowded and late). Add these projects: Rolling stock for the Fairmount Branch; Light Rail on Washington Street to Dudley Square and extended to Mattapan Square (comparison should have included extension to Mattapan). Reevaluate for EJ benefits: Silver Line Phase III (no need to connect Roxbury to South Boston/Logan); Red/Blue Connector (the AITC provides access to Logan); Urban Ring (oppose phased approach, rethink via expanded EJ community process). Support flexing highway funding to transit.	
Jackmac74	Transportation Equality for the City of Somerville	Supports extending the Green Line to Union Square as a matter of equity and an Orange Line station at Assembly Square to promote full economic development. Somerville and others would benefit and deserve the improvements.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Katie Bacon	Somerville resident	Supports Green Line extension to Somerville (make it a high priority; state should get serious about this air quality commitment). More buses are not the solution (congestion, uncomfortable, unreliable). Union Square has the same potential as Davis Square had. It makes economic and demographic sense. Would be easy to implement. MPO should press the MBTA to open a commuter rail stop (Fitchburg Line) at Union Square in the interim.	Green Line to Medford Hillside included in Plan, alignment to be studied – included in UPWP.
Bhupesh Patel	Somerville Bicycle Committee	Appreciate the increased consideration of bicyclists' needs. Ask for commitment to a consistent level of funding for bicycle projects (support for bikes is under-funded; commitment is needed in light of federal cutbacks). Also asks the MPO to commit to identifying and constructing a connected off-road "bicycle" network (serving cyclists, skaters, pedestrians) with access to MBTA stations. Support: Somerville Avenue, Beacon Street, The Community Path, Earhart Dam Crossing, Route 28 undercarriage at the Mystic River.	Somerville Avenue and Beacon Street included in TIP. Other comments for future consideration in Plan, TIP, and UPWP.
Jeff Levine	Inner Core Committee	Pleased that many of the ICC priority projects are in the certification documents. However the Plan should include Urban Ring III. Region wide bicycle projects are a priority (Bike to Sea II, Minuteman Path connection to Dudley White Path, and Wayside Trail/Waltham.) Pleased that the MPO convened the EJ Committee. Plan lacks thorough analysis of EJ: look at focusing new services in EJ communities; and give consideration to those with burdens from facilities. Community needs should be discussed in the Plan. Review interpretation of auto travel speed improvements.	Urban Ring III included in Universe of Projects List. Environmental Justice comments to be addressed in the MPO's continuing environmental justice efforts. Individual bike facilities would be considered in TIP process.
Pat Jehlen, State Representative	27th Middlesex	Supports Green Line station in Union Square, transit stops along the Lowell Line or the Green Line extension through Somerville, Community Path extension to Boston, and an Orange Line stop in Assembly Square. Provides supporting information. Better transit would give Somerville residents a fairer return on their taxes and fares. Somerville suffers from being divided by rail and highway rights of way. Air quality is impacted by transportation through Somerville (not service for residents). Concerned that EOTC has not yet approached the legislature or local officials regarding funding for the SIP and CA/T commitments. Knowing the funding is not secured, doubts that the Plan is fiscally constrained or that the projects are on track. She is available to assist in legislative action and in completing the projects that will help Somerville.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor. Finance chapter revised to address funding of SIP commitments.
Mark Pener	Somerville resident	Make the Green Line extension to Somerville a high priority (important economic/land use and transit benefits for an underserved community); include a stop in Union Square (crucial to economic future of Somerville; would stimulate improvements in the area	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP. Finance chapter revised to

Name	Affiliation	Comment	MPO Action
		very easily; perfect for transit oriented development; zoned as a Central Business District; area already urban density; great increase in property values in the area; would stimulate properties to higher/better economic use; would have high usage as 26,000 people would have access, many whom are transit dependent; would improve access along the Route 28 corridor and to dense/mixed-use developments in the area). The finding that the Green Line "would be of greater benefit in terms of convenience than of actual trip time" is incorrect; bus to train transfers imply wait time. The suburbs often have faster and more convenient access to Boston than some Somerville residents. More people would use the Green Line (more frequent, reliable, comfortable). Bus patrons wait, exposed to weather for inferior service. The Green Line has a high EJ rating. Somerville houses much transportation infrastructure and gets little service (6 rail lines/no stops; Orange Line/no stops); houses Boston Engine Terminal; pays as much as Newton with only one stop (Newton's median household income is $86,000 versus Somerville's $46,000); highest concentration of immigrant and low income residents; second most environmentally-burdened; is in maintenance status for CO and non-attainment for ozone, and unsafe levels of air toxins; some pay more to get to Boston than residents in farther communities. In order to understand equity in the system, comparisons should be made across modes. It is an unjust and unfair way to make funding decisions. The Plan doesn't identify funding sources for SIP, CAT, and ACO legal commitments.	address funding of SIP commitments.
Charles E. Shannon, State Senate	2nd Middlesex District	Supports the Green Line extension to Union Square and the Assembly Square station; will revitalize the area and reduce air pollution (air quality commitments require the Green Line extension). Somerville has been neglected. It is densely populated and has the second highest ratio of MBTA users. Eight lines travel through, but it is served by only one.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Daniel I. Ward, Senior Vice President	CB Richard Ellis, Whittier Partners	Fund the Burgin Parkway Overpass project sooner. Owners of properties in the Crown Colony Office Park have funded the design for the project, expecting that it would be funded in a reasonable amount of time. The project is needed now (severe congestion and wait times exiting the office park) and can't wait until 2025. It is important for the economic welfare of the area.	Included in Recommended Project List in Plan in timeframe 2015-2025.
Msull19578		Supports the Orange Line stop at Assembly Square and Green Line and bike path extension. Somerville has been burdened with the MBTA repair yard, which provides no revenue to community. Route 93 ramp creates traffic congestion. Route 28 is one of the worst intersections in the state. The city is vulnerable to state budget cuts because of its small commercial tax base.	Green Line to Medford Hillside, Assembly Square, and I-93/Mystic Avenue Interchange included in Plan. Green Line alignment and Route 28 to be studied –included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
John Deacon	Sierra Club	The Plan lacks vision. The MPO should commit to the Replacement Transit Project; Arborway; Green Line to Somerville; 200 Additional Buses; modern fare collection before fare increases should all be in the Plan. The MBTA should operate all electric vehicles on 3 major routes in Boston, and for the Urban Ring. (Diesel powered vehicles have negative health impacts that are made more serious when operated in densely populated areas. Comments on projects in the Plan: Transitway - Operate Electric Trolley. Buses (ETB) on the South Boston Piers Transitway (Silver Line) to minimize pollution; the proposed mode does not have a "history." The public health benefit of	Green Line to Medford Hillside, Arborway, 100 additional buses, Urban Ring I & II, Silver Line III, North Shore Transit Improvements, and Greenbush included in Plan. Green Line alignment to be studied –included in UPWP. A study being performed for the Red Line/Blue Line project. Environmental Justice comments to be addressed in the MPO's continuing

Name	Affiliation	Comment	MPO Action
		ETB outweighs the visual impacts of the overhead catenary. ETB can also be compatible with other modes and economical. ETB is even more needed to offset the impact of the other buses operating in the vicinity. Arborway – Allocate funds and expedite this project; positive impacts of making this line all electric would be significant. Washington Street Replacement Transit – operate electric vehicles for this service. Urban Ring – Advance the rail-based approach as the initial phase in order to avoid operating large numbers of internal combustion vehicles in densely populated areas. Electric Commuter Rail Locomotives - Environmental and economic impacts of operating all electric locomotives – Wonder if the Silver Line I and II should get further funding; whether it is in compliance with Title VI; and whether the MPO should be recertified. Concerned that the Silver Line is not an obtainable or adequate substitution for rapid transit in the Southwest Corridor Project. The Silver Line is not such until it connects with the Transitway project; and it is not a true replacement service. There is a tremendous inequity in investment between the Silver Line (roadway rebuilding and routine bus purchase) and the Transitway (grade separated, $600 million+). Consider reconfiguring the Transitway project to connect with the Green Line to Back Bay instead of Roxbury. Propose – Extend Transitway to Boylston (no connection to Silver Line but consider future extension to Back Bay); construct Phase I of a light rail on Washington Street project using existing Green Line tunnels from Boylston to Turnpike and Orange Line replacement service to Dudley Station (future extension to Mattapan Square); expedite replacement service (with Orange or Green Line service) in the CIP. Arborway - Not an expansion but a restoration of previous service and should be expedited. The ridership assumptions could be flawed. North/South Rail Link – This project advances the MPO regional goals discussed in the Plan. Secure funding to complete the EIS and design to protect the right-of-way. A statewide rail development office is needed to coordinate issues among MPOs and New England. Green Line Extension to Somerville/Medford - Include a Union Square station in the studies; the storage facility should be made available to other potential electric vehicles in the area. Red/Blue Lines Connection – Is this project needed? The AITC seems to provide a better connection to Logan. Perhaps a connection from Park Street would be beneficial. North Shore Transit Improvements – This study should consider the Rail Link study. It would be prudent to better use the existing rail structure in the area. Bus Rapid Transit – Using “rapid transit” in this context is inaccurate and should be revised. A bus operating in mixed traffic isn’t rapid transit. Silver Line funds were actually spent on a roadway project and this has implications for MBTA budgeting. The Urban Ring project should be better defined before it proceeds. Regarding the Silver Line and the Transitway, different standards are applied for different populations. Purchase 100 New Buses – These buses could be used for additional feeder bus service. Assembly Square station – The developers should participate in the cost. Fairmount Line – Give this priority. Greenbush – The Club supports this service. Additional Transit Projects for Consideration – Improve Pedestrian Access to Anderson RTC from Western Side; Extend Trackless Trolley #71 From Watertown to Newton Center; and New Green Line Needham Branch. Environmental Justice – Before the Urban Ring project has EJ benefits the populations served must be identified. Investment decisions are made without involving all stakeholders. There is a lack of faith that the MPO can conduct a creditable planning process representing EJ needs. Past capital projects that benefited	environmental justice efforts.

Name	Affiliation	Comment	MPO Action
		low income/minority communities might have done so, but inadvertently. The MPO's failure to provide adequate replacement service is an injustice for the largest community of color in the MPO. Include various measures in the Plan. Conduct study of impact of new low floor vehicles on capacity and of fare policy on low-income communities. Measures to increase traffic through minority communities is not an EJ investment. Pay attention to "Stealth Highway expansion," the gradual transformation of streets through neighborhoods into major roadways serving through-traffic. They do not serve the neighborhoods and discourage transit use. The MPO should undertake an analysis of the impact (on commuter and business travel demand patterns) of recent trends in telecommunications development. The MPO should examine alternatives before committing to future airside expansion at Logan or Hanscom.	
Lori Segal, for the Commission on Energy Use and Climate Change	City of Somerville	Supports the Green Line extension through Somerville (feasibility study seems under-funded) and the Orange Line station at Assembly Square (smart growth, transit-oriented development). Expedite study of extension from Lechmere to Union Square and along the Lowell line to Medford Hillside. The transportation sector was responsible for the greatest increase in greenhouse gas emissions in Massachusetts from 1990 to 2000. One of the most effective ways to reduce greenhouse gases is to reduce use of personal vehicles; to do so requires available public transit and safe pedestrian/bicycle facilities. Cars in stop and go conditions contribute disproportional to fuel use and emissions. Buses will not attract the ridership rapid transit will.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Tom Lincoln	Medford resident	Support the transit aspects of the Plan, particularly Green Line extension to West Medford and Orange Line improvements in Somerville. Advance transit and traffic mitigation on all fronts. Support mixed-use development plan at Assembly Square. The Plan is key to Medford's and Somerville's future. Excellent visions.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Michael McGinnis	Millbury resident	Opposes traffic calming as the measures: slow traffic and emergency vehicles, impede decreases in air pollution, damage emergency vehicles (which costs taxpayers), endanger injured persons and those with back problems, and obstruct snow plows.	Comments not applicable to the Plan – forwarded for future consideration in other documents.
James Arsenault	Somerville resident	Make the Green Line extension to Union Square a priority; access to subway service is an important amenity; Somerville is culturally diverse (Portuguese, Indian, African American) and low median income; desperately needs and deserves a subway stop; would revitalize the area (the Davis Square stop revitalized its neighborhood). Somerville is environmentally burdened (has 75 toxic sites, the most in Massachusetts; and is the densest city in New England). Commuting by bus takes much longer than by rail.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Dorothy A. Kelly Gay, Mayor	City of Somerville	Requests $29 million in public funding in the Plan for the Assembly Square Orange Line Station. Supports the Mystic Avenue/I-93 Interchange project (critical to safety and capacity, 130,000 ADT, CMS; air quality impacts; loss of time; many injuries; EJ concerns; a conceptual design has been prepared). Supports Green Line extension (SIP commitment, work must begin to meet schedule, need a realistic funding strategy). Supports Urban Ring Phases 2 and 3 (full benefits will come with the rail phase, plan funding for this phase or risk losing Somerville's support). Somerville bears the burden of much of the transportation infrastructure in the region and so, deserves more benefits.	Green Line to Medford Hillside, Assembly Square, Urban Ring I & II, and I-93/Mystic Avenue Interchange included in Plan. Green Line alignment to be studied – included in UPWP. Finance chapter revised to address funding of SIP commitments.
Karen Wepsic	Boston (Jamaica Plain)	Specific comments: page 2-13, discuss ridership for each commuter boat service, not just the total; page 2-19, post ride check figures on the Web; page 3-2, MPO meeting minutes are not posted in a timely fashion. Questions the EJ value of the Silver Line	Process comments referred to MPO. Environmental Justice comments to be addressed in the MPO's continuing

Name	Affiliation	Comment	MPO Action
	resident	III. The EJ community has little interest in going to Logan or the Seaport District. Make existing service to Roxbury work better; increase level of service and fund the EJ recommended projects. Cross-town routes do not run on weekends or holidays.	environmental justice efforts.
Barbara Cassesso	Somerville resident	Somerville's EJ issues underscore the need for transit investment in the city. Somerville residents are the second-most environmentally burdened in Massachusetts and the city is the densest city in New England. Per capita income is lower than Boston or Cambridge. East Somerville has the highest immigrant population but is least well served by transit.	Green Line to Medford Hillside, Assembly Square, and Urban Ring I & II, included in Plan. Green Line alignment to be studied – included in UPWP.
Lawrence Paolella, PE	Somerville resident	Add funding for the Green Line extension; it is an important air quality project and must be addressed. Supports the Green Line Extension with station at Union Square. Would reduce traffic, air pollution, provide equity (burdens concentrated in Somerville, other neighboring communities have more rapid transit stations, Somerville deserves better). Diesel rail lines through Somerville and the traffic congestion contribute to its poor air quality (maintenance for CO and non- attainment for O2). Also supports the Community Path (need to expand bike and pedestrian alternatives).	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied –included in UPWP. Finance chapter revised to address funding of SIP commitments. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Tony Fields	North Suburban Planning Council	Make several specific changes: page 2-3, add "transportation" as fourth element of EO418; page 2-4, "extensive" and "integrated" does not describe the bicycle and pedestrian facilities in the region; page 2-8, bicycle facilities should be added as congestion management measures; page 2-19, include trail mileage; page 2-20, trail network is not "extensive," do not overstate; page 2-20, elaborate on transit bike parking facilities needed; page 5-6, state that public use includes bicycle and pedestrian; include a table listing communities that have water and sewer capacity, checked with communities and population buildout; table 5-1, includes all the projects most critical to NSPC; page 5-14, define "partial constraints: and "absolute constraints"; page 5-72, Reading and Woburn: I93/I-95 Interchange should add history of recent, controversial study; page 5-104, New Boston Street Bridge, should reflect community concerns of Wilmington. NSPC has not taken a position on project but endorses a study. Concerned that MassHighway will stop funding enhancements.	Specific comments included in Plan. Histories not included in project description.
Denise Provost, Alderman at Large	City of Somerville	Expedite the Green Line extension through Union Square (economic development opportunities; Artery mitigation should be underway). Create an Orange Line station at Assembly Square (key to Somerville's economic development and fiscal stability). Extend the Somerville Community Path/Cedar Street to Lechmere (it is a transit project, linking the Minuteman Bike Path almost to Boston; cycling safe from traffic; green space; Somerville funded design and will fund some of construction). Develop a Route 28 Plan from the Study (traverses low income/minority neighborhoods; has been neglected). Transportation needs of most of the city are grossly underserved. History and regional importance of Somerville discussed (residential development grew along the transit services extended into and through the city; highways replaced transit leaving residents without service but suffering highway impacts.) Currently the city endures many transportation burdens: old railroad lines divide the city, isolate sections, increase congestion; many bridges over the lines are closed or in deteriorated condition and scheduled for closure, confining traffic; hundreds of thousands of commuters pass through each day (air and noise impacts are enormous, accidents, congestion, property damage, unsafe conditions for drivers and pedestrians, high insurance rates, land use-lost opportunity costs and losses to tax base, other highway impacts). Buses are	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.

Name	Affiliation	Comment	MPO Action
		unreliable, infrequent, unpleasant. Union Square bus stop is noisy, poor air quality, pigeon droppings. There are no economic benefits from pass-through traffic, only impacts.	
Timothy J. Toomey, Jr, State Representative	26th Middlesex	Give priority to traffic improvements for Sullivan Square. Supports Green Line extension to Medford Hillside, the Urban Ring, and the Minuteman Bike Trail to Boston.	Green Line to Medford Hillside, Rutherford Avenue with Sullivan Square improvements, and Urban Ring I & II included in Plan.
Walter A. Stiehl	Somerville resident	Plan and fund an MBTA stop at Assembly Square. Extend the Green Line through Union Square. Support improvements for Route 28. Living close to Route 28 and I-93 have seriously impacted my family's health (son's acute asthma). Traffic congestion is serious. Somerville is the workhorse of the transportation network.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Stephen V. Mackey, President/CEO	Somerville Chamber of Commerce	Supports the Assembly Square Orange Line station; Green Line extension including Union Square; Urban Ring, Route 28 Corridor study; Mystic Avenue/I-93 Interchange; Somerville Avenue and Beacon Street improvements. The city is densely populated, needs an urban commercial tax base to support its budget. It needs transit services to support growth.	Green Line to Medford Hillside, Assembly Square, Urban Ring I & II, and I-93/Mystic Avenue Interchange included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP.
John Stasik, Chairman	MetroWest Growth Mgmt. Committee Transp. Task Force	Policy statements will adequately guide decisions to meet future challenges (suburban transit) and will work with MPO to implement policies successfully. Agree with policy on strong public/private partnerships; support commitment to enhancements, traffic calming, and sensitive roadway design; glad MPO recognized need for reverse and suburb-to-suburb options and active TDM. However, the UPWP and TIP do not seem coordinated with the Plan. There are no Plan projects specifically designed to address local and suburb to suburb transit needs. Also, there should be recognition and support for the Inter-district Bus Program. For the next Plan: recognize that suburban transportation needs are unique and need flexible solutions; suburban mobility should be increased to $2 million a year; funding for TMA/TDM activities should be $2 million; fund the Inter-district Bus Program Funds for the LIFT. MetroWest area workers are no longer always Boston-oriented. The area is now a successful hub of economic activity, with congestion and demand for suburb to suburb access (shopping, schools, medical facilities, and employment). Appreciates reviewing all certification documents simultaneously (helps in seeing coordination, consistency, path of implementation).	Suburban mobility included in Plan.
Rebecca Snow	Foxboro resident	Document is lengthy and hard to understand. Link the appendices to the table of contents and text. Focuses on near-term projects rather than the future; not much on technology; not much mention of Route 495; reverse commuting will be more important; would like to see the project ratings; the Route 128 Add a Lane is not an expansion project as current use of breakdown lanes makes it a 4-lane highway now.	Project ratings included in Appendix D.
Edward Ganshirt		The hub and spoke concept must be abandoned. Big growth will occur in the 495 suburbs, not Boston. The concepts are Boston centric; this is a problem. Suburbanites need cross-town transit, not service to Boston; need operating investment, not capital; send money to the towns for transit operations; we need less rail and more bus service; suburban road projects will encourage sprawl; this plan should go back to the drawing board.	Suburban mobility included in Plan. Other comments for future consideration in Plan, TIP, and UPWP.
William J. Phelan, Mayor	City of Quincy	Move up the funding for the Burgin Parkway overpass. The project design is privately funded (based on its listing in previous certification documents) and the city is working	Included in Recommended Project List in Plan in timeframe 2015-2025.

Name	Affiliation	Comment	MPO Action
		hard to prepare it for construction and will submit 75% plans in 2003. Project has regional benefits and is vital to prevent queuing from Route I-93 and promote economic development in a development center. Operations will be improved; benefits of transit access and TMA access from Quincy Adams station, and reduce air pollution.	
Martha Bewick	Advocates for Transp. Alternatives	Pleased that the PMT criteria were used; impressed with the EJ work conducted. MPO Waterways: Increase the MPO area to include Boston Harbor and Massachusetts Bay (include the waterways); Boston terminals and routes are eligible for federal funds as national intermodal corridors; undertake a comprehensive analysis of potential capacity (constraints and opportunities) of the Massachusetts waterways; need input from private providers; include financial comparisons on private sector transit providers and a chapter on private transit initiatives (such as the Longwood Medical Center transportation program); questions about the Greenbush Line ridership figures, mobility assessment (due to availability of and impact on other modes); add Boston employment figure statistics by CBD; add the Quincy boat (Harbor Express) service; correct numbers for commuter boat parking facilities; add ferry service to Logan; improve discussion of port activity (cruise ships, charter and tour vessels, port economy, fishing industry); agree that the Greenbush is a low EJ priority; Greenbush should also be ranked low in mobility and utilization; the opposition to Greenbush should be given a forum in the transportation building (violates the principles of citizen participation and good transportation); other specific edits. Attaches 5/1/01 letter on earlier Plan.	For future consideration in Plan, TIP, and UPWP. Quincy ferry service, ferry service to Logan, and Greenbush included in Plan.
Bennet Heart and Toni Hicks	Conser-vation Law Foundation	Call on the MPO to conduct a real long-range planning exercise; have missed an opportunity for comprehensive transportation planning. Region needs a vision that addresses economic, environmental, and equity objectives; should be proactive (use transportation investments to guide policy goals and smart growth), based on realistic financial assumptions (include only projects with secured or likely funding), and ambitious. Plan assumes 20 years of sprawl; does not address smart growth objectives or steer land use patterns. Urge MPO to look for examples of regional travel demand models that use progressive state land use policies and practices. Plan fails to consider greenhouse gas emissions/climate change. Climate change is our most substantial environmental problem and reduction of vehicle miles traveled should be a core goal; must begin curbing GHG emissions. Plan gives short shrift to Environmental Justice; shares concerns of ACE/On the Move regarding inadequate consideration of EJ. Need more information on how EJ is factored into the project selection process. Plan fails to address Central Artery Commitment funding. Transit commitments are state law and enforceable in federal law. The MPO is risking federal funding by not demonstrating funding sources. Arborway and Greenbush should be built; determine which others will be build or the subject of substitution. Plan fails to flex highway funds to transit; not good policy. Project selection lacks transparency and consistency (does not explain how selection criteria are applied; concerned that it is after the fact); there should be an overview on priority ratings by performance measure and supporting analysis. Plan assumes MBTA fare increases in advance of other ways to increase non-fare revenue, as mandated by Massachusetts General Law. Revise Plan to include: number of fare increases anticipated; revised revenue projections consistent with legal mandates; report on the status of these efforts; and a report on progress toward achieving revenue recovery and efficiency improvements. Supports the Urban Ring (should be the highest priority and pursued with urgency and creativity), the Silver Line (not satisfied with	Plan process comments will be considered in the development of the next Plan. Environmental Justice comments to be addressed in the MPO's continuing environmental justice efforts. Finance chapter revised to address funding of SIP commitments. Greenbush, Arborway, Urban Ring I & II, Fairmount, and Silver Line Phase III included in Plan.

Name	Affiliation	Comment	MPO Action
		Phase I as a replacement service; need Phase 3 and planning process to determine final transit mode), and the Fairmount Line (provides significant service to transit dependent communities; should have additional rolling stock to improve headways).	
Paul A. Stakutis, Director of Environmental Affairs	MA. Turnpike Authority	Submitting background information for the record and providing updated information. The CA/T Project has transferred funds for construction of the ferry terminal to the MBTA Transitway contract (revised ferry terminal design and terminal construction to be complete in 2004). Also has budgeted funds for start up service between Russia Wharf and Charlestown Navy Yard, including acquisition of 2 medium-size, low-speed commuter ferries. Please note that many employees in the Charlestown Navy Yard and tourists as well as residents would use the service. Please correct the way documents refer to the project – it is the Central Artery/Tunnel Project or CA/T Project.	Included in Plan
Susan Gitelle Baron, President	League of Women Voters of Waltham	Supports public transportation to relieve traffic and serve the elderly, institutional workers, and students. Recommends: include transit for Waltham/Belmont area (redevelopment at Met State and McLean Hospital and Fernald); transit should take priority over roadway expansion; Waltham should be directly connected to the regional bus/subway system (to Alewife, Riverside, or Waverly Square); restore funding for the Waltham City Bus (needed public input in route development, Trapelo Rd. route would be successful). Would also facilitate the flow of traffic between communities. Seems to be a lack of vision for the future; little examination of new approaches (private rapid transit). Area needs: redevelopment at Met State and McLean Hospital will add housing, businesses, and open space; commuting to transit brings traffic through suburbs in between; Waltham commuter rail station is active on weekdays only; Waltham's population is aging and will require non-auto transit options; transit must be more frequent than twice an hour to be used.	Ideas considered in development of Plan. Some comments not applicable to the Plan – future consideration in other documents. Suburban mobility included in Plan.
Peter Grace	Somerville resident	Supports Green Line extension to Union Square and Wellington Circle, East Somerville/Winter Hill/Broadway; the Orange Line station at Assembly Square. Add high-speed light rail from Sullivan Square to Medford, Melrose, Malden and Everett and Chelsea; bicycle facilities (lockers, racks) at intermodal transit stations. Rail transit should provide access to growing employment zones along Route 128, I-95, I-495, and New Hampshire. Concerned about reliance on automobiles in the region; auto ownership is expensive, isolates members of a community, creates road rage, threatening to pedestrians, unsafe for bicyclists. Somerville is a good candidate for transit, dense population; but have only bus service and 1 transit stop; poor air quality, large areas paved are a blight, they pollute and hold heat in summer.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Barbara Crichlow	Boston (Mattapan) resident	Submits numerous questions about specific transit projects in Mattapan; Mattapan Station facilities need to be maintained and improved; Personnel are needed at the station to provide information and safety and security. In particular, replace the footbridge over the right-of-way between the Mildred Avenue School and Norfolk Park (community divided by the right-of-way, access needed, children cut the fence to cross). Why aren't buses coordinated with the commuter rail schedule? Many Orange and Red Line riders switched to the Fairmount Line.	Some comments not applicable to the Plan – for future consideration in other documents. MBTA operations comments forwarded to service planning.
Joe Beckmann	Somerville resident	Supports Orange Line station in Assembly Square; Green Line extension to Union Square and an additional stop to serve Tufts; concerned about health effects of diesel commuter rail engines and automobiles in Somerville. Some members of the community are considering legal or community action (demonstrations, traffic and transit disruptions targeting the Central Artery project and the Democratic National	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.

Name	Affiliation	Comment	MPO Action
		Convention) if steps to reduce emissions in Somerville and provide additional transit services are not advanced in the MPO planning.	
Erin L. Hemenway	Somerville resident	Make the Green Line to West Medford (large EJ community would benefit)a high priority and keep it funded as scheduled and include in TIP. Add language on Urban Ring specifying one-technology service. Make Orange Line station at Assembly Square a high priority and abandon plan to require private funding (Somerville has borne a high pass-through traffic cost already). Be more specific about how the clean air projects will be funded. Also, supports reducing reliance on single-occupant vehicles; improving options for pedestrians and cyclists; reverse commuting; and improving mobility for EJ communities (cites the #350 bus route as a good example); smart growth (asks the MPO to develop a regional growth impact review process). Congratulates the MPO for balanced and well-written drafts. Extend the comment period; the summer is a difficult time for the public to comment.	Green Line to Medford Hillside, Urban Ring I & II, and Assembly Square, included in Plan. Green Line alignment to be studied – included in UPWP. Finance chapter revised to address funding of SIP commitments.
Wig Zamore	Somerville resident	Supports Green Line extension to Union Square, full funding of Orange Line at Assembly Square (EOCD may make this one of the state's highest development priorities), rail-based transit on the Lowell Line, Routes 28 and 99 Corridors improvements, and extension of the Community Path to Boston. It is time to address the transportation needs of Somerville; a question of fairness. The community bears a heavy burden for transportation infrastructure and impacts and receives very little benefit; and section of city most heavily burdened by infrastructure have least transit benefit; community is most densely settled municipality in MA; 2nd most reliant on transit; qualifies as an EJ community; I-93 serious noise and air pollution; Route 28 and 38 bring traffic and pollution; 7 passenger rail lines (5 of which are diesel) that do not stop; Boston Engine Terminal. Eliminate the questions about MPO commitment to the air quality commitments; draft documents do not comply with air quality regulations; doubts that the SIP commitments are funded (shortfall of $773 million) or will be completed on time (no design funds 2004-2008; implies that design/permitting/construction done 2009-2011; not likely). Doesn't seem to be a funding commitment for the Fairmount Line ($35 million). Transportation investments should make best use of existing infrastructure and serve densest communities better; MA has highest rate of asthma, serious air pollution, ozone violations, deaths from fine particulates. Traffic and diesel emissions create severe air quality impacts; serious public health implications. Somerville residents (including EJ populations) are 2nd most burdened by pollution in state. Residents are vulnerable to gentrification.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor. Finance chapter revised to address funding of SIP commitments.
Menno Koning	Millis resident	Supports the Millis Commuter Rail extension from Needham Junction to Millis. It is feasible and desirable; a small project; will reduce traffic at a low, incremental cost.	Included in Universe of Projects in Plan
Richard T. Reed, Town Administrator	Town of Bedford	Do not support MAPC's recommendation to move the Middlesex Turnpike project to the 2015 time-frame in the Plan.	Included in Recommended Project List in Plan in timeframe 2004-2009.
Tom Lincoln	Medford resident	Supports mass transit in the Plan, especially the Green Line Extension to West Medford and Orange Line to Somerville and other improvements for Somerville. Supports mixed used development at Assembly Square; promote mass transit and traffic mitigation. Citizen activist involved in TeleCom City project planning and historic preservation, open space, and watershed issues.	Green Line to Medford Hillside, Assembly Square, and TeleCom City included in Plan. Green Line alignment to be studied – included in UPWP.
Barbara Cassesso	Somerville resident	Somerville residents are the second most environmentally burdened in Massachusetts; densest city in New England; most toxic sites per square mile; air quality does not meet federal standards; per capita income is less than Boston or Cambridge; very transit	Green Line to Medford Hillside, Assembly Square, Urban Ring I & II, and I-93/Mystic Avenue Interchange included in Plan. Green

Name	Affiliation	Comment	MPO Action
		dependent; high proportion of immigrants; yet is the least well served by the MBTA.	Line alignment and Route 28 to be studied – included in UPWP.
Mark D. Stern		Supports Green Line to Union Square, Orange Line at Assembly Square, transit along the Lowell Line or Green Line through Somerville, and community path to Boston. Also supports Beacon Street and Somerville Avenue reconstruction. Projects are needed for Somerville's economic survival and growth, air quality, Environmental Justice, balanced benefits to burdens. Transit, environmental, and safety inequities are detailed.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Sylvie Laborde	Somerville resident	Supports Green Line extension in Somerville and Orange Line stop. Many people work in Boston, but access is difficult; bus system pretty good, but slow, stuck in traffic.	Green Line to Medford Hillside and Assembly Square, included in Plan.
Alicia Duff		Supports Green Line to Union Square; would bring many benefits (look at Davis Square) including Somerville deserves good public transit.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Heather Gallant		Supports Green Line to Union Square.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Mini Ann Polumbaum		Supports Green Line to Union Square and Orange Line stop at Assembly Square; community path; traffic improvements for Route 28.	Green Line to Medford Hillside and Assembly Square, included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Mike Koehler	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square; community path. Will improve the environment and access for all who depend on public transportation.	Green Line to Medford Hillside and Assembly Square, included in Plan. Green Line alignment to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Mallory Morton	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square. Somerville is underserved with a large, transit-dependent population; environmental justice populations will be benefited.	Green Line to Medford Hillside and Assembly Square, included in Plan. Green Line alignment to be studied – included in UPWP.
Priscilla Chew	New England Medical Center	Supports Green Line to Union Square and Orange Line stop at Assembly Square. It will revitalize the area and be cost effective. The city needs good transit.	Green Line to Medford Hillside and Assembly Square, included in Plan. Green Line alignment to be studied – included in UPWP.
Resa Blatman & Stefan Cooke	Somerville residents	Support Green Line to Union Square and Orange Line stop at Assembly Square. It is not fair that no other city has so much rail infrastructure and so little service. Also need a bus from Harvard Square to Ball Square, Somerville. Citizens are investing in the community and need transit improvements.	Green Line to Medford Hillside and Assembly Square, included in Plan. Green Line alignment to be studied – included in UPWP.
Suzanne Bibeau	Somerville resident	Supports Green Line to Union Square.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Hans Indigo Spencer		Supports Green Line to Union Square and Orange Line stop at Assembly Square. Somerville is densely populated; large EJ population; would support economic development; air quality improvements to meet federal clean air standards; many other	Green Line to Medford Hillside and Assembly Square, included in Plan. Green Line alignment to be studied – included in UPWP.

Name	Affiliation	Comment	MPO Action
		benefits; would be fair.	
Susan Fudim		Supports Green Line to Union Square and Orange Line stop at Assembly Square.	Green Line to Medford Hillside and Assembly Square, included in Plan. Green Line alignment to be studied – included in UPWP.
Lynette M. Ingram		Supports Green Line to Union Square and Orange Line stop at Assembly Square; would support economic development and improve air quality. Somerville is densely populated and has little train service.	Green Line to Medford Hillside and Assembly Square, included in Plan. Green Line alignment to be studied – included in UPWP.
Ilona Fried	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square; would have beneficial effects; economic potential, reduce pollution; provide affordable transit for underserved and neglected communities.	Green Line to Medford Hillside and Assembly Square, included in Plan. Green Line alignment to be studied – included in UPWP.
Susan Berstler	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square and the community path. Community is densely populated. With so much money spent on the CA/T project it is not much to ask that the communities transit improvements.	Green Line to Medford Hillside and Assembly Square, included in Plan. Green Line alignment to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Maria Carpenter	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square. Many benefits, including shorter commuting, economic revitalization. Current transportation situation is not fair.	Green Line to Medford Hillside and Assembly Square, included in Plan. Green Line alignment to be studied – included in UPWP.
Bob Segal	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square. State spends too much on automobile transportation and not enough on transit. Plan for the future to conserve energy and reduce pollution. Also add token machines and card readers at every station.	Green Line to Medford Hillside and Assembly Square, included in Plan. Green Line alignment to be studied – included in UPWP.
Robin C. Beck-Miller	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square. Buses are frequently late. Subway service should be better to this most densely populated community.	Green Line to Medford Hillside and Assembly Square, included in Plan. Green Line alignment to be studied – included in UPWP.
Alison Cromer	Somerville resident	Supports Green Line to Union Square; would be way to address traffic and parking issues and be a better way to travel to Boston, and be good for economic development in the area.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Kate Kennedy	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square. City is underserved by transit. These improvements would provide service for transit-dependent people in both areas; reduce traffic; serve EJ populations; help the environment.	Green Line to Medford Hillside and Assembly Square, included in Plan. Green Line alignment to be studied – included in UPWP.
James J. Williams	Somerville resident	Do whatever you can to help the environment in Somerville and across the state.	Green Line to Medford Hillside, Assembly Square, Urban Ring I & II, and I-93/Mystic Avenue Interchange included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP.
Marcelo Vinces	Somerville resident	Supports Orange Line stop at Assembly Square and more bike lanes and bike path extensions (the Community Path).	Assembly Square included in Plan. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Kelly English	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square and bike paths (make Somerville bike friendly) (Community Path) and improvements in the Route 28 and Route 99 corridors (working with Cambridge and Charlestown). The city	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in

Name	Affiliation	Comment	MPO Action
		needs transportation improvements.	UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Janine Fay	Somerville resident	Supports Orange Line stop at Assembly Square. City is underserved.	Assembly Square included in Plan.
Christina Del Priore	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square. Teenagers need transit access to these areas because they don't drive and because walking isn't safe at night. Transit is good for commuting adults and for teens and the elderly, too.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Renee Stillings	Somerville resident	Somerville needs more transit service; would like to see a trolley between squares in Cambridge and Somerville; has a dense and diverse population. The community needs public transit. Concerned about "yuppifying" things, though.	Green Line to Medford Hillside, Assembly Square, and Urban Ring I & II included in Plan.
Bob Nesson	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square; would improve air quality, reduce car dependence, serve EJ populations, help economic development.	Green Line to Medford Hillside and Assembly Square, included in Plan. Green Line alignment to be studied – included in UPWP.
Robin Gibbs	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square; also train stops on the Lowell line and additional bus service.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Sarah Lynn	Somerville resident	Supports Community Bike Path; uses it whenever possible. Create a stop on the Lowell line in Magoun Square. The rail lines have impacts and the city should have some benefit from them. Need alternatives to the automobile.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Laura Migliori	Somerville resident	Supports Green Line to Union Square. It was good for Davis and will be good for Union. Would provide transit service to densely populated, EJ area; help the economy, provide jobs, improve tax base, air quality, no other community has so much rail through and so little service, compare with Newton.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
David Guss	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, planning for Route 28 improvements, and Community Bike path.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Gabrielle Hermann	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square.	Green Line to Medford Hillside and Assembly Square, included in Plan. Green Line alignment to be studied – included in UPWP.
Joel N.Weber II		Somerville needs north-south bus service to Boston and Cambridge, currently walking is faster than existing transit. Need more frequency of bus service on the 88 route and for the 85, more hours of service and extended route to Davis Square. Would also like additional light rail.	100 additional buses included in the Recommended Plan for service in the Inner Core. Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Mark Howland	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square. Would support development, serve a dense, EJ population	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.

Name	Affiliation	Comment	MPO Action
Anna Shenk	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, and the bike path to the sea (Community Path).	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Katherine F. Wheeler	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements, and extension of the Community Path. Supports transit and bike.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Elizabeth Carpino	Somerville resident	Opposes the Green Line to Union Square, supports Orange Line station at Assembly Square, plan for Route 28 and fund the Community Path.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Elvira Difabio	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, planning for improvements to Route 28, and the Community Path.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Jennifer Harkness	Somerville resident	Supports Community Path. City needs a liveable piece and open, green space. Set aside land for the future.	Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Wayne O'Neill	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square. Buses are unreliable, uncomfortable, polluters and some don't run on weekends; transit would be better, more comfortable and reliable service. Also would be cleaner form of transportation and better for the environment.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Fernando Leon	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square. City needs more transit options which will help reduce traffic.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Dyan Blewett	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square. Current commute requires bus trip to the Orange Line; traffic is congested and service not frequent; buses are crowded and hot; other service is not direct enough.	Green Line to Medford Hillside and Assembly Square, included in Plan. Green Line alignment to be studied – included in UPWP.
Alisha Creel		Supports Green Line to Union Square and Orange Line stop at Assembly Square. Bus service is unreliable and slow, has other shortcomings. There are many rail lines through the city, but only one station. Rail service would help economic growth, reduce pollution, help the underserved.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Greg Nadeau family	Somerville resident	Expand rail service in Somerville. Community is underserved; deserves more service.	Green Line to Medford Hillside and Assembly Square included in Plan.
Mary Person	Somerville resident	Supports additional public transportation in Somerville and stops along the commuter rail lines in Somerville. Cambridge has much better service than Somerville does.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment

Name	Affiliation	Comment	MPO Action
		Would help reduce traffic congestion, pollution, and increase civility.	to be studied – included in UPWP.
Marc Halevi	Somerville resident	Fund the Community Bike Path. It will reduce traffic to Boston, help unify the community, provide accessible recreation.	Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Stefan Economou	Somerville resident	Fund the Community Bike Path. It will reduce transportation pressure. Cost effective way to provide transportation and public health benefits. Also supports Green Line to Union Square or nearby. Somerville is densely populated and should have more transit access; suffers from being an auto through-route.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Sanjuro Jogdeo	Somerville resident	Increase accessibility to public transit for residents; city is traversed by rail lines but has little rail service; as densely populated community, it is a logical candidate for rail service; would be equitable treatment.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Jason Boucher	Somerville resident	Supports Green Line to Union Square. Would be a vital link to Boston; jobs, access, congestion relief. Considering size and density, city should have more transit.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Tsering Wangmo, speaking for 57 residents	Alston Street, Somerville residents	Support Green Line to Union Square.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Mathias Neuber	Somerville taxpayer	Supports Green Line to Union Square. Somerville deserves good transportation. Cites Davis Square economic successes. Would serve densely populated area, would have many benefits; air quality, improve tax base, jobs. Many rail lines, little service; compare with Newton's service.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Melissa McWhinney	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square. Buses are inefficient and take at lease 1 hour longer per trip. Would address service needs for the EJ population; be equitable.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Kristi Chase	Union Square Task Force, Somerville	Supports Green Line to Union Square; It is an historic location; great ethnic diversity, lively community, current bus service is inadequate, especially for the elderly and young families. Buses and trucks in the area create air pollution. Green Line stop would serve many neighborhoods; cut pollution; reduce cars; make Boston accessible; promote economic growth.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Meredith Pearson	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, planning for improvements on Route 28, and funding the Community Path. Somerville bears financing and environmental costs. Per capita income is low, many immigrants, and dense population. Somerville deserves these transportation improvements.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Kate Bunker Neto	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, and Route 28 improvements. Would walk to Union Square station. Question of equity for Somerville; only one rail stop (compare with Cambridge); working class community with very high transit use (2nd highest proportion of working people using transit). Need a better way to control traffic on Route 28 at Assembly Square. Would like to see Ikea at Assembly Square, but worries about traffic and pollution. Planning should satisfy people who want both the Orange Line at Assembly Square and Ikea.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP.

Name	Affiliation	Comment	MPO Action
Phillip Parsons	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square. Supports tax dollars should be put to use in Somerville, not to the wealthier communities. Union Square station is critical to economic revitalization and transportation needs; won't promote sprawl.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Karen Keating	Somerville resident	Supports Green Line extension in Somerville. Concerned about the lack of quality public transportation in Somerville. Bus service is uncomfortable; can be hurtful (had back problems). Many rail lines passing through with little service; most congested, lease service. Need an alternative to the car; reduce congestion, improve air quality.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Michael Trembicki	Somerville resident	Supports Orange Line stop at Assembly Square. It is critical to the ecologically sound park and mixed use development that is the best use for the area. Important to air quality in the area. Children will suffer increased asthma without it.	Assembly Square included in Plan.
James M. Williamson	Cambridge resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, and Community Path. Avoid the fare increase; changing the criteria for determining whether increases are permissible should not be slipped through the state legislature.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Ed Marakovitz, Dorinda Jaquith	Somerville residents	Support Green Line to Union Square in first 10 years of the Plan. It takes from 60 to 90 minutes to get to Chelsea (4 miles) by transit. Somerville has been short-changed by MBTA commuter rail extensions to the suburbs.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Leah Ostenberg	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, planning for improvements in the Routes 28 and 99 corridors, and the Community Path. Make Somerville more bike friendly; more pedestrian alternatives. Add a commuter rail station on the Lowell Line. Projects should integrate well into the community.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Devin Fyder	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements study, and the Community Path extension. Route 28 improvement studies should be completed before projects bring more cars into the area. These would reduce pollution.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Cindy Bishop	Somerville taxpayer	Supports Green Line to Union Square. Compare with Davis Square experience. Would serve densely populated EJ neighborhoods; reduce traffic; stimulate the economy. Somerville has many rail lines and only one stop; consider equity, compare with Newton service.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Pascal Baun, PhD	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square. Also supports the Community Path extension. Many benefits for Somerville, the environment, and the wider area. Economic benefits for the wider area with less air pollution; there is no stop accessible by foot at either square. Somerville needs the green space and recreation areas the Community Path extension would provide.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Eamon Nash	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements study (need a plan before projects are implemented), and the Community Path extension (wonderful for recreation, commuting options, cost effective). Add stops	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in

Name	Affiliation	Comment	MPO Action
		on the commuter rail lines going through Somerville; would be cheap because it would only mean adding platforms. Would be catalysts to economic growth. Somerville is environmentally burdened; have high proportion of toxic sites, air quality does not meet federal standards.	UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Mathey Borus	Somerville resident	Supports Orange Line stop at Assembly Square and the Community Path. Concerned that the city needs transportation infrastructure improvements. Would provide needed service; reduce dependence on cars. Also, upgrade Silver Line to light rail; it is a bus, affected by traffic, pedestrians; would expand ridership.	Assembly Square included in Plan. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Nan Levinson	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, planning for Route 28 improvements, and the Community Path. Pleased that Environmental Justice is a consideration.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Madeline Fraser Cook	Somerville resident	Supports Green Line to Union Square. Important improvement for residents and businesses. Area has variety of businesses, often struggling; access would help them. Also, would reduce congestion.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Linda Cardinal	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square and the Route 28 improvements study. All are needed greatly; population density, poor air quality; low per capita incomes; EJ community. Transit improvements are deserved.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP.
Abby Yanow		Supports Green Line to Union Square, Orange Line stop at Assembly Square, the Community Path (would add green space), and Route 28 improvements study. Would stimulate jobs, help businesses, tax revenue; reduce gridlock and air pollution.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Nicholas Lowe	Somerville resident	Supports Green Line to Union Square and other areas in Somerville. There is a disproportionate lack of transit service. The MBTA has bus routes, but these are inadequate (less reliable, slower, more pollution) and can't compare with rail service. Union Square has traditionally been an important commercial district; now in decline because of poor access. Would be a big boost to economic recovery.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Dora St. Martin	Lowell resident	Supports the Green Line to Union Square and a station on the Lowell Line at Gilman or Ball Squares. Would love to take the train to work instead of driving (currently train to subway to bus transit trip takes 30-40 minutes longer than driving).	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Deborah Snow	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, and the Community Path extension. Also supports transit stops on the Lowell Line or Green Line through Somerville. Agrees with other commentors. Live up to the Green Line extension commitment.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Joanna Alexander	Massachusetts citizen	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements, and more bike paths (the Community Path extension). Many rail lines through the community and little service; compare with Newton. Many benefits from transit; jobs, reduced pollution, closer neighborhoods, tax revenue.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of

Name	Affiliation	Comment	MPO Action
			the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Ronald Schutz		Supports Green Line to Union Square. Somerville deserves good public transit. Many benefits; economic, reduced traffic, service to EJ community, tax base, air quality, fairness (compare with Newton).	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Katherine M. Wallace	Somerville resident	Supports Green Line to Union Square (also a station behind City Hall), Orange Line stop at Assembly Square, and the Community Path extension. Somerville needs and deserves good transit. Suffers many burdens from the rail lines through the city but few benefits. Bicyclists don't pollute. Bike safety is important. Provide transit to densely populated EJ community.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Tom and Kristi Gill		Supports Green Line to Union Square. Would bring many benefits; reduce traffic, serve EJ community, stimulate jobs and the economy, improve air quality. City has lots of transportation infrastructure, but little service; compare with Newton.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Emily Van Ark	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, improvements in the Routes 28 and 99 corridors, and the Community Path extension. Concerned about the lack of funding shown in the Plan for the Green Line and the Assembly Square projects; Green Line extension is a clean air obligation and has to be up by 2012; is important and should be funded. City bears a transportation burden with few benefits.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor. Finance chapter revised to address funding of SIP commitments.
Catherine Truman	Somerville resident	Supports Green Line to Union Square and Orange Line service to Assembly Square, and increased commuter rail service (station on Lowell Line), and additional bike paths (Community bike path). Somerville pays about what other communities pay and gets less service; need equity.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Michael J. Wadness	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square. Somerville needs service; is environmentally burdened. Transit will decrease air pollution.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Lynn Laur	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, plan for Route 28 improvements, and the Community Path extension. Somerville has too much of an environmental and economic burden and deserves better transit service.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Mika Cheng	Somerville resident	Supports Green Line to Union Square and the Community Path extension. City suffers from air pollution and these would alleviate problem.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Ben Dryer	Somerville resident/	Supports Green Line to Union Square. City is underserved by MBTA. Would help city and strengthen MBTA; maintain ridership. Should be the next major expansion project;	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied –

Name	Affiliation	Comment	MPO Action
	business owner	MBTA own right-of-way, area densely populated, businesses want service.	included in UPWP.
Sandi Goldberg	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements, and the Community Path extension. The Union Square area is one of the most poorly served in the city which has inferior service compared to other cities.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Chip Phillips	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square. City bears burdens and should have benefits.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Miranda Elmorsi	Somerville resident	Supports Green Line to Union Square. Has to wait for bus often for long times in bad weather. Area is fast emerging, densely populated. Would have economic benefits. Need better bus service.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Katherine Reeder	Somerville resident	Supports Green Line to Union Square. Would serve an EJ community and bus connections are poor.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Guy Tassinari		Supports Green Line to Union Square. Somerville deserves good public transit. Compare with the Davis Square experience. Would serve EJ community; reduce traffic; encourage walking; provide jobs and improve the economy and tax base; address the equity issue of city's infrastructure burden with its poor transit service. Compare with Newton service.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Napoleao C. Neto	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, and Community Path extension. City needs better transit.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Gary Van Deurse	Somerville resident	Somerville needs a T stop; please provide adequate transit service.	Green Line to Medford Hillside and Assembly Square included in Plan.
Jurgen Weiss	Somerville resident	Supports Green Line to Union Square. Upset that it is not scheduled until 2025. Project must be an immediate priority; postponement is a violation of the CA/T agreement on mitigation.	Green Line to Medford Hillside included in Plan in the 2010-2015 timeframe. Green Line alignment to be studied – included in UPWP.
Kate Sullivan	Somerville taxpayer	Supports Green Line to Union Square. Compare with Davis Square experience. Would provide service to EJ community; have many economic benefits. City is burdened by transportation infrastructure and has few benefits; compare with Newton.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Daniel Ruane	Somerville taxpayer	Supports Green Line to Union Square. Compare with Davis Square experience. Would provide service to EJ community; have many economic benefits; air quality benefits. City is burdened by transportation infrastructure and has few benefits; compare with Newton.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
CL Baird	Somerville taxpayer	Supports Green Line to Union Square. Compare with Davis Square experience. Would provide service to EJ community; have many economic benefits; air quality benefits. City is burdened by transportation infrastructure and has few benefits; compare with Newton.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Basav Sen	Somerville	Supports Green Line to Union Square (high traffic, lots of diesel emissions, poor air	Green Line to Medford Hillside and Assembly

Name	Affiliation	Comment	MPO Action
	resident	quality, EJ community), Orange Line stop at Assembly Square (transit access for residents of several neighborhoods and to stores and businesses in the area), and a commuter rail stop in Ball Square (would be great improvement for residents of several neighborhoods).	Square included in Plan. Green Line alignment to be studied – included in UPWP.
Emily E.B. Jennett		Supports Green Line to Union Square. Compare with Davis Square experience. Would provide service to EJ community; have many economic benefits. City is burdened by transportation infrastructure and has few benefits; compare with Newton.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Jill Loeser		Supports Green Line to Union Square. Compare with Davis Square experience. Would provide service to EJ community; have many economic benefits. City is burdened by transportation infrastructure and has few benefits; compare with Newton.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Steven Rae	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, and the Community Path extension. Somerville is underserved. Compared with surrounding communities, amount of service is imbalanced. Many benefits from transit service; reduce traffic, air pollution, noise; help restaurants.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Amy Seehusen		Supports Green Line to Union Square. Many area residents rely on public transportation. Would reduce traffic and help the local economy.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Jim O'Brien	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, and the Community Path extension. Please take the city's transportation difficulties into account.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Robert J. Filene	Cambridge resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square. Would create jobs, ease tax burden, and reduce traffic. Improvements are warranted because of the city's population density and lack of open space.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Andrew Levin	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements, and more bike paths (the Community Path extension). There are many students and minorities in the area who don't have cars and depend on public transportation.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Nancy Dellamattera	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square. Cites dense population and poor existing transit service. Without these improvements, there will be an increased traffic burden.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
J. Maynard Gelinas	Somerville resident	Supports Green Line to Union Square (high population density, truck traffic), Orange Line stop at Assembly Square, Route 28 improvements (traffic is getting worse), and the Community Path extension.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Michael Wachs	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements, and the Community Path extension. The community is becoming toxic	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment

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		with traffic, noise, and air pollution.	and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Claire Lowe	Somerville resident	Supports Green Line to Union Square and Winter Hill, Orange Line stop at Assembly Square. With all the money spent on roadways lately, it is time to spend on transit.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Susan Moynihan	Somerville resident	Please consider Somerville's transit needs. It takes 1 hour and 45 minutes to get to Boston from Winter Hill.	Green Line to Medford Hillside and Assembly Square included in Plan.
Virginia Messinger	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square. Dense population will ensure good ridership. City is currently underserved by transit.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Frances Gayron	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Andrei Smarandoiu	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements, and the Community Path extension. City is densely populated, very polluted, these measures will help solve the problems.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Marsha Turin	Somerville resident	Supports Green Line to Union Square. Will reduce traffic and congestion and air pollution. Union Square if a lively area that would be revitalized by the station. It would serve thousands of residents. City is densely populated, needs more service. Compare with Davis Square experience. Union Square should be the Paris of the new millennium.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Jennifer Mazer	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square. Would reduce traffic, improve air quality, create jobs.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Arun Sannuti	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Judy Schwartz	Somerville resident	Supports Orange Line stop at Assembly Square, commuter rail stop in Somerville, and addition of north/south bus routes (from Winter Hill to Harvard Square), and the Community Bike Path.	Assembly Square included in Plan. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Felice Whittum	Somerville resident	Supports Green Line to Union Square. Somerville's poor transit service is scandalous. The less affluent areas need transit service. Buses are not as reliable as trains and not easy to use if you have children; many residents don't have cars. Many benefits: less pollution, safer travel with her children. Also, add a commuter rail station on the Lowell Line.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Melissa Haber	Somerville resident	Supports Green Line to Union Square. City bears the burden of many rail lines but little service. Dense city, too many cars. This station would benefit the environment, reduce need for parking, economic benefits.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Diana Tatz	Somerville	Supports Green Line to Union Square, Orange Line stop at Assembly Square, and more	Green Line to Medford Hillside and Assembly

Name	Affiliation	Comment	MPO Action
	resident	bike and foot paths (the Community Path extension). These improvements would mean more jobs for residents and from businesses in the area; reduce car traffic, improve air quality, reduce stress.	Square included in Plan. Green Line alignment to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Beth Galston	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements, and the Community Path extension. Somerville deserves these improvements. Would bring important improvements to the quality of life.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Jon Wheeler		Supports Green Line to Union Square, Orange Line stop at Assembly Square, and the Community Path extension. Working class neighborhoods deserve transportation service. Development will increase traffic near Assembly Square and transit would help this problem. Travel by bike and foot reduces car traffic and benefits public health.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Kristine Lessard	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, and the Community Path extension.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Laurie Gagnon	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements, and the Community Path extension. City bears transportation infrastructure burden with few benefits. Traffic in the area is terrible; commuting takes a long time. Would improve the quality of life and the environment in the city.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Alantinacio		Supports Green Line to Union Square, Orange Line stop at Assembly Square. The Transportation Equity Partnership has good arguments for these improvements; city is underserved, densely populated.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Ann Cassesso		Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements, and the Community Path extension.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Scott Plante		Supports Green Line to Union Square, Orange Line stop at Assembly Square, Blue Line extension to Lynn, Red Line stop at University Park/MIT, Red Line spur (underground) through Arlington Center to Lexington, circumferential subway line through Cambridge to Dorchester, reconstruction of Beacon Street, Massachusetts Avenue, and Commonwealth Avenue, Main Street 2-way from Longfellow Bridge to Central Square, Route 28/Route 1A improvements and Rutherford Avenue improvements, North/South underground Amtrak/commuter rail link and a surface trolley along the Rose Kennedy Greenway, uniformly designed and energy efficient street lighting.	Green Line to Medford Hillside, Assembly Square, North Shore Transit Improvements, and Rutherford Avenue included in Plan. Green Line alignment to be studied – included in UPWP.

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David Trugg	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements, and the Community Path extension. Also supports low emission buses. Good transit reduces pollution, creates jobs, increases the tax base and brings neighborhoods together.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Gina Hahn	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements, and the Community Path extension. City is densely populated and pays about as much as Newton in assessments and gets much less service. Will spur transit-oriented development, new jobs, open space and commercial tax revenue. City has heavy transportation burden. Also, construct a station on the Lowell Line between the Inner Belt and Tufts. City needs bike paths and pedestrian alternatives. Would improve quality of life and serve EJ community.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Barbara Cahill		Supports Green Line to Union Square and Orange Line stop at Assembly Square. Would improve the vitality of the area and bring transit to many people.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Allison Stieber	Somerville resident	Supports Green Line to Union Square. Public transportation in Somerville is woefully inadequate. Can't get to work by transit; connections and schedule of service makes is impractical. Relying on automobile for transportation is expensive. Lack of public transit hinders job options. There should be more parking at Lechmere station. Transit shortcomings detract from the quality of life substantially and restrict job and recreation opportunities.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Maura H. Swan	Somerville resident, Prospect Hill Nbhd. Assoc.	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements, and the Community Path extension. Somerville is densely populated, diverse, underserved by transit. Roads are overrun by cars bringing air pollution. These projects will address these problems and result in many benefits; economic, air quality; safety; increased commercial tax base.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Armanda Merryman	Somerville resident	Supports Green Line to Union Square and the Community Path (a safer option for bike commuters and recreational facility). Neighborhood is diverse and has community feeling, but needs public transportation. Equity is an issue; lack of service is unfair.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Chadwick W. Collins	Somerville resident	Supports Green Line to Union Square (has been promised for 30 years) and Orange Line stop at Assembly Square (create jobs and reduce traffic). Concerned about growing traffic and pollution. Somerville is underserved and bears a transportation infrastructure burden.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Jill Clarke	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements, and the Community Path extension. Needed for environmental justice.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Patricia Wild	Somerville resident	Supports Green Line to Union Square. City is underserved by transit	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied –

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			included in UPWP.
Farshid Azad	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square. Would stimulate jobs and development and generate tax revenue. Residents are environmentally burdened; pay high assessment for few benefits. 29% of population must use transit (2nd highest in the state).	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Deborah Pacini	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements, and the Community Path extension. Outraged that Somerville is bearing such a heavy burden for transportation and gets so little in return.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Melissa Korchin	Somerville resident	Supports Green Line to Union Square (agreed to do long ago, has lots of potential), Orange Line stop at Assembly Square (would greatly revitalize the area), and the Community Path extension (make good use of currently wasted, overgrown land).	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Karla Ellenbogen	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, and the Community Path extension. Fell in love with Somerville as a Tufts student and never left. City needs transit. Environmental Justice demands better service to compensate for poor air quality, toxic sites (more per square mile than any other community in Ma), and little open space.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Paul Lachelier	Somerville resident, Somerville Green-Rainbow Party	Supports Green Line to Union Square and Orange Line stop at Assembly Square. Will lessen the car traffic that makes bicycle travel so dangerous and will reduce air pollution and asthma rates. Somerville bears a heavy burden of transportation infrastructure with little benefit. Compare with Cambridge service and population. Somerville is dependent on the state for annual city budget; needs commercial property to increase revenues; transit stations would stimulate economic development.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Allan Shearer	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square. Consider the city's dense population, congested traffic and lack of parking. Also, Somerville is 7th in hazardous impacts per square mile. Improving air quality is needed to improve environment. Expanding rail service would do that.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Seth Mirick	Somerville resident	Supports Green Line to Union Square. The community has been waiting a long time for this improvement.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Susanna Schroeder	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square. Would increase property values, make an easier commute, attract commerce. Also, supports IKEA at Assembly Square (with the transit stop, shoppers could get to the mall and commuters to work).	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Nicole M. Jordan	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements, and the Community Path extension. Would create jobs, encourage tax-generating development.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates

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			the alternatives for the Green Line corridor.
John Karnath	Somerville resident	Supports Green Line to Union Square (second funding priority, and would reconnect this area with Boston), Orange Line stop at Assembly Square (fourth funding priority, important for the long term, but dependent on future development), Route 28 improvements (third funding priority), and the Community Path extension (first funding priority, inexpensive, with an immediate return with health benefits).	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Ross Faith	Somerville resident	Supports Green Line to Union Square. It makes good economic sense, it will revitalize the area's economy and improve the quality of life. Because of the disparity between Somerville's financial contribution and transit services received, suggests that if there is no Union Square service, that assessments be reduced.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Liane Curtis	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square. Would address shortfall in transit service and would stimulate commerce and reduce pollution.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
MBrown7387		Supports Green Line to Union Square. Bus service is poor (slow, no protection from the elements).	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Johnny Woodnal and Todd Cole	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, and the Community Path extension. Injustice in the lack of transit service in Somerville in spite of its population density and density of toxic waste sites. Transit service would help address this. Fewer cars will improve the environment.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Mitch Bogen	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements, and the Community Path extension. Somerville has too great an environmental and economic burden and deserves better transportation services.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Noreen Burke	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements, and the Community Path extension. These are key to Somerville's economic survival, air quality, environmental justice, and balancing its transportation infrastructure burden.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Isabelle Bourdonne	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements, and the Community Path extension. Adult Education students are working adults who rely on public transportation.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Julia Malik	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements, and the Community Path extension.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of

Name	Affiliation	Comment	MPO Action
			the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Aaron Agassi	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements, and the Community Path extension. These investments would help the community, including under-served minority groups, and generate economic growth and improve the tax base.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Jaime Lederer		Supports Green Line to Union Square. Would open up doors for job opportunities and economic success.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Yaoqing Huang and Shouying Lu	Somerville residents	Support Green Line to Union Square and Orange Line stop at Assembly Square, and fund the Community Path.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Marilyn McQuilkin	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square. Buses are caught in traffic and are never on time and sometimes get "scratched'. This has made me late for work.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Heath Young	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square. Lack of transit has stifled development in East Somerville. Air quality is unacceptable. Community is suffering from harmful pollution. Compare with Davis Sq. experience. These projects will bring job, development, cleaner air, better quality of life.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Leora Schiff	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements. Residents are underserved by transit, frustrated by bus service (poor, longer commutes, and none on weekends). Transit projects would help businesses, attract people, increase productivity, add to tax base, and reduce traffic congestion.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP.
Adam Lunardini	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP.
Michael and Elizabeth Grunko	Somerville resident	Supports Green Line to Union Square (help working class, benefit restaurants and shops, could be extended to Porter Square for additional connections), Orange Line stop at Assembly Square (potential for high tax development), and the Community Path extension (a bike and pedestrian path through Davis Square). Also, add a station on the Lowell Line at either School or Central Street. Residents have paid the price of urban density for 100 years.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Amy Bauman	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square. Welcomes Ikea if they will share the cost. Development will add to the tax base. Preserve green spaces, improve transportation.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Julia Parker	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, and the Community Path extension.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP. Community Bike Path will be one of the considerations of

Name	Affiliation	Comment	MPO Action
			the MBTA as it evaluates the alternatives for the Green Line corridor.
Enrique Guardia	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square. Somerville should have equal access to transit. Compare with Davis Square experience. Please make these a priority.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Debra Weisberg and Ramon Bueno	Somerville residents	Supports Green Line to Union Square and Orange Line stop at Assembly Square. It will ease traffic congestion and pollution.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Dave Johnson	Somerville resident	Supports Green Line to Union Square. Lives nearby and would greatly benefit from transit there.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Stan Kobylanski	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP.
I. Ahmed	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements. Residents pay high insurance premiums because of all the cars that pass through; pollution results. Unfair that Somerville's assessment doesn't result in more transit. Not bringing more transit to Somerville results in health impacts from pollution. It is in the commonwealth's best interest to provide these services.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP.
Cordula Robinson		Supports Green Line to Union Square. It is the progressive, environmentally sound thing to do.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Frank Quaratiello		Supports Green Line to Union Square, Orange Line stop at Assembly Square, and the Community Path extension (would be a transportation and recreation, and green space boon; provide safe, environmentally friendly way to work). Major roads divide the city; green space is gone; high population density.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Vicky Peterson	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, and the Community Path extension.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Karen Harvey	Somerville resident	Supports Community Path. Exciting venture; relatively cheap; healthy and environmentally sound.	Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Karen Harvey	Somerville resident	Supports planning for Route 28 improvements.	Route 28 to be studied – included in UPWP.
Karen Harvey	Somerville resident	Supports Orange Line stop at Assembly Square.	Assembly Square included in Plan.
Karen Harvey	Somerville resident	Supports Green Line to Union Square. Important for economic revitalization. Most densely populated city in the state; would improve air quality, create jobs, reduce bus and car traffic, and would bring more balance to the burden the city bears for the rail	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.

Name	Affiliation	Comment	MPO Action
		lines.	
Damian Mangino	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements (should be brought down to ground level, make a boulevard/gateway, would improve air quality, needs to be done as surrounding development takes place), and the Community Path extension. Compare the Davis Square experience for community transformation from transit.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
B. Diane Martin and David Shaw	Somerville residents	Supports Green Line to Union Square (would serve EJ community, bring economic development), Orange Line stop at Assembly Square (bring economic development), Route 28 improvements (make it livable). It takes longer to get to work at MIT by bus than to get there from the suburbs. City bears transportation burdens and not fair share of benefits. It would be a disservice to the area not to complete these projects.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP.
Janet Platt	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements, and the Community Path extension. Citizens deserve the same benefits as other cities in the MBTA area; they pay assessments, too.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Kristen Lee	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square. Would stimulate employment, ease tax burden, serve EJ population; revitalize the community. Compare with Central Square experience.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Catherine D. Jurczyk	Somerville resident	Supports Green Line to Union Square (reduce traffic and enhance development) and Orange Line stop at Assembly Square (provide access for workers and shoppers, especially needed if IKEA is built there) Route 28 improvements (congested with commuter traffic, extensive planning is needed, and the Community Path extension. Somerville pays the same assessment as communities that have rapid transit; one quarter of residents use transit, but only one rail station. Air quality does not meet federal standards and city is severely environmentally burdened.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Lana	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements, and the Community Path extension. City is one of the poorest, densest, and most polluted.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
David Noah	Somerville resident	Supports Green Line to Union Square. Will stimulate jobs.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Vincent Moy	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements, and the Community Path extension. Benefit the welfare and improve the quality of life.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Johathan Chines	Medford resident	Supports Green Line to Union Square and Medford Hillside. Would reduce traffic and pollution in one of the most densely populated areas in the region; expand economic	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied –

Name	Affiliation	Comment	MPO Action
		opportunities for EJ communities.	included in UPWP.
Ellin Reisner	Somerville resident	Supports Green Line to Union Square (needed to meet Clean Air commitments), Orange Line stop at Assembly Square, and the Community Path extension (safe, healthy transportation option). Burdens include diesel buses stuck in traffic (making their use inconvenient), Boston Engine Terminal (diesel pollution), 7 passenger rail lines passing through but not stopping, excessive traffic on Route 28 (I-93 spillover), and closed bridges over railroad tracks (isolating sections). Traffic congestion is terrible. Route 28 and Rutherford Ave. need to be reconstructed, especially with pending development. Improvements would serve EJ communities.	Green Line to Medford Hillside, Assembly Square, and Rutherford Avenue included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Stephen Smith	Cambridge resident	Supports Green Line to Union Square. Would create jobs, reduce auto pollution that causes asthma, and provide transit for EJ populations and many neighborhoods.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Colin Macdonald	Somerville resident	Supports Green Line to Union Square or Orange Line to Assembly Square. City has too many burdens and not a fair share of benefits; this is inequitable.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Anna Styskin	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square, and Community Path. Compare with Davis Square experience. Would be valuable resource for all; increase economic growth, improve quality of life.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Donene Williams	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements, and the Community Path extension.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Angela Vitulli	Somerville resident	Supports Green Line to Union Square (written into the state's air quality plan) and Orange Line stop at Assembly Square. Bus service is unpredictable and unpleasant. City bears burdens and has few benefits (6 train lines passing through, diesel buses, commuter rail bridges in disrepair and dangerous). Transit improvements would foster local economic revitalization; improve air quality.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Jennifer Dorsen	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square. Many in the area would use transit at these facilities. Would be an easy way to improve quality of life. Also would like commuter rail stop on the Lowell Line. There are many ecological, health, economic benefits and jobs. There is much pass through service; little service to the city.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Susan Samoiloff	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square. Could jump start economic growth in the area. Somerville bears an unfair burden of transportation without commensurate benefits.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Rebekah Gewirtz	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square. Somerville desperately needs more transit stops. Buses cause pollution that can cause asthma; creates smog and bad air quality; they are also late and inefficient. Would stimulate economic development; compare with Davis Square experience. Would serve an EJ, transit dependent community. Buses and cars release toxic fumes.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.

Name	Affiliation	Comment	MPO Action
Bill Rankin	Somerville resident	Supports Green Line to Union Square (many unique shops and non-driving residents), the Community Path, and the Urban Ring (should not just build on easements that will serve only undeveloped areas). The Plan favors extensions at the expense of the community squares that are the heart of Boston's urbanism. Provide train service to the squares. Somerville has been passed over for too long.	Green Line to Medford Hillside and Urban Ring I & II included in Plan. Green Line alignment to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
July Belber	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, and the Community Path extension. Would bring many benefits; more transit riders, reduction to traffic, provide access to additional housing for transit-dependent; restore fabric of the city. Biking and walking are pleasant, a good form of exercise; provide clean air and recreational space.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Michael Ikoma	Somerville resident	Supports Green Line to Union Square. Traffic congestion is very serious. Transit is preferable. Would stimulate business and transit ridership.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Robert Garofalo	Somerville resident	Supports Green Line to Union Square and Orange Line stop in Assembly Square. Would reduce traffic.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Rebecca Mirick	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, and the Community Path extension. It is disgraceful that city has only 1 transit stop.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Bethany Carlson	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square, and the Community Path extension. Somerville residents pay assessments as high as communities with several rapid transit stops. Would improve air quality, reduce auto use. The bike path extension would greatly improve residents' access to park areas.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Josh Sugarman		Supports Green Line to Union Square. As a student, depends on MBTA for transportation. This would fill a public transportation gap.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Steven Keren	Somerville resident	Supports Green Line to Union Square and into Medford. Somerville is poorly served by transit. Would reduce pollution, stimulate growth, improve the quality of life for a community that has a high transit usage. Also supports direct subway access to Logan airport; to do this extend the Silver Line (LRV), a Blue Line connection to Charles Station. Also supports Blue Line to Salem. Would reduce traffic. Extend Red Line to Route 95 in Lexington or to Arlington Heights; would reduce traffic, pollution, and stimulate growth, and encourage use of Hanscom.	Green Line to Medford Hillside, Silver Line III, Red/Blue Line Connector, and North Shore Transit improvements included in Plan. Green Line alignment to be studied – included in UPWP.
Tina Miller	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square. Because of poor transit service, forced to drive to work (transit took longer than trips from the suburbs). Public transportation should support urban neighborhoods. It is time the community got benefits of the rail lines it hosts.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Emily Muldoon	Somerville	Supports Green Line to Union Square and additional stops along the line. Current lack	Green Line to Medford Hillside included in

Name	Affiliation	Comment	MPO Action
	resident	of service discourages business. Low income, ethnically diverse community is under-served.	Plan. Green Line alignment to be studied – included in UPWP.
Elvira Reyes		Supports Green Line to Union Square.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Emil Levy	Cambridge resident	Supports Green Line to Union Square. Would benefit the environment (fewer cars and air pollution) and the economy (stimulates business and creates jobs).	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Justin Lowell-Bellew	Somerville resident	Supports Green Line to Union Square; a sound investment and overdue. Somerville is underserved; bus service is infrequent and insufficient. Need equity in service for assessments paid.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Victoria Goodhart	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements, and the Community Path extension.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Abi Harper	Somerville resident	Supports Green Line to Union Square (promised years ago, would reduce traffic and generate development), Orange Line stop at Assembly Square ((would create jobs and ease tax burden), Route 28 improvements (12 development projects in the area will add 57,000 more car trips, need a plan for a livable boulevard), and the Community Path extension (wonderful new transportation and recreation resource, inexpensive).	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Stuart JL Gardner		Current lack of train service is ridiculous, unfair, and inequitable. Commuters would pay more for train service. No one cares.	Green Line to Medford Hillside and Assembly Square included in Plan.
Tam Neville	Somerville resident	Supports Green Line to Union Square.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Dan Proctor	Cambridge resident	Supports Green Line to Union Square. Many compelling reasons: economic, fairness, pollution reduction, sprawl reduction.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Barbara Steiner	Somerville resident	Supports Green Line to Union Square (long overdue, more important now, ironic that can get to 128 on south side but only to East Cambridge on the other), Orange Line stop at Assembly Square (serve EJ population), Route 28 improvements, and the Community Path extension. Dense population, large percentage of working poor, poor air quality. Transit access will address these problems.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Jacy Ippolito	Somerville resident	Supports Green Line to Union Square. Greater access to Boston. Buses are insufficient. Will help large numbers of residents, many of whom don't have a car. Compare with Davis Square experience. We feel very invested in the area.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Sonia Kastner	Newton resident	Supports Green Line to Union Square. Residents of Somerville deserve the same access to transit as Newton residents.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Ian Baker		Supports Green Line to Union Square and Orange Line stop at Assembly Square. Dense population; unbelievable that city has only 1 stop.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment

Name	Affiliation	Comment	MPO Action
			to be studied – included in UPWP.
Carly Cohen	Cambridge resident	Supports Green Line to Union Square. Would reduce traffic, help the environment, create new jobs, serve EJ populations.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Catherine Halley	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements, and the Community Path extension. Walking to transit is difficult in winter.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Phillip Sego	Cambridge resident	Supports Green Line to Union Square. Area suffers from traffic congestion and air pollution.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Ellen Chase	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square, and Community Path extension. Transit improvements will help economically, environmentally, and socially. Community Path will reduce traffic and add to health and recreation.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Cristina Napoli	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements, and the Community Path extension. City is site of most toxic sites per square mile in MA. Community wants green space; nice environment.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Doane Perry and Karen Carmean	Cambridge residents	Supports Green Line to Union Square. Use transit extensively and walk and ride bikes.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Richard Fuller	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, and the Community Path extension. Projects would improve safety for bicyclists, stimulate economic development, and increase property values. Commutes by bicycle most of the time.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Andrea Friedman	Somerville resident	Supports Green Line to Union Square and would like to see more bike paths in the city.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Jane and Joseph Carpineto	Somerville residents	Support Green Line to Union Square. It is inexcusable that the city (size and density) has only 1 stop. This project was promised years ago. City has serious pollution problems from auto dependence.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Chad Rousseau	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square. City should get additional service comparable with the assessments it pays. Compare with Davis Square experience.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Steve Mulder		Supports Green Line to Union Square. Cites dense population, 7 rail lines that go through but do not stop, long transit travel time, possible revitalization of Union Square.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied –

Name	Affiliation	Comment	MPO Action
		Gap in rapid transit service in Somerville is inexplicable. Union Square is perfectly located in the middle of the service gap. Station should not be located along McGrath highway; convenient for fewer people.	included in UPWP.
Jesse Mermell	Brookline resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square. Somerville is a wonderful place to visit; food, shopping, and entertainment.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Frank Schricker	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square, and Route 28 improvements. Area needs improved public transportation; needs a smart development plan. Somerville has been passed by, but you will be able to work cooperatively with STEP (citizen advocacy group).	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP.
Beth Balter		Supports Green Line to Union Square and Orange Line stop at Assembly Square.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Michael Quan	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Darrell Morrow	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements, and the Community Path extension. Projects are vital to city's economic growth, air quality, environmental justice, balancing burden of public transportation infrastructure with transportation benefits.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Glen Morgan		Supports Green Line to Union Square. Compare with Davis Square experience to understand the benefits at stake. Would like to help with project.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Karen Natale	Somerville resident	Supports Green Line to Union Square.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Heather Heimarck	Somerville resident	Supports Green Line to Union Square (would have located business there if there were a T stop, Orange Line stop at Assembly Square, Route 28 improvements (needs improvements, lighting, streetscape, signals sidewalk maintenance; it is dangerous) , and the Community Path extension. Somerville is in desperate need of bike lanes and alternative transportation opportunities; woefully underserved by transit. Air quality is poor; many airborne particulates. Traffic will get worse with the many new developments. Commutes are horrible. Need aesthetic improvements; safety; pedestrian-friendly environment.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Karen Molloy	Somerville resident	Supports Green Line to Union Square (heavily populated commercial and residential area; would be a big economic boost to businesses) and Orange Line stop at Assembly Square (badly congested, future development will make it worse if there is no T stop; would help economic growth). City is woefully underserved by rapid transit; has 8 rail lines and only 1 stop; contributes as much funding as Newton yet does not have comparable service. Would have a positive impact on air pollution; serve EJ population.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Shelia Ehrens	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square. Also asks for commuter rail stops along the Lowell Line. Would revitalize the squares and	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment

Name	Affiliation	Comment	MPO Action
		centers of the city. Compare with the Davis Square experience. Would also: reduce pollution, reduce commuting time, and address infrastructure/service inequities.	to be studied – included in UPWP.
William Shelton, President	Mystic View Task Force, Somerville	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements, and the Community Path extension. Somerville was formerly well served by transit. 29% of residents use transit to get to work; transit service is inadequate. Transportation infrastructure burdens the city with few benefits. Cites the unreported I-93 air quality impacts (increased ten times). Many benefits from implementing these projects: service to EJ populations, air quality requirements, commercial development, reduction in traffic, and a new transportation and recreation opportunity.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Lynn McWhood	Somerville resident	Supports Green Line to Union Square (cites history of area, would restore economic center, dense development), Orange Line stop at Assembly Square (Dense, high-value mixed use development is vital; would provide tax base), Route 28 improvements (has isolated the poorer part of the community, shift car and truck traffic off of Route 28), and the Community Path extension. Also asks for as least two commuter rail stops on the Lowell Line (diesel trains cross the city, many closed bridges over commuter rail lines). Concerned that the Plan does not identify funding for key transportation projects; SIP mandates Green Line extension and current scheduling in the Plan is unrealistic. Assuming private funding for the Assembly Square station will prevent transit-oriented development there.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor. Finance chapter revised to address funding of SIP commitments.
Ron Newman	Somerville resident	Supports Green Line to Union Square (revitalize the area), Orange Line stop at Assembly Square (unlock development potential), Route 28 improvements (remove elevated structure, restore McGrath Highway and the Fellsway to their original parkway/ boulevard characters, safe bicycle connection, safe way to cross under I-93 for pedestrians and bicycles), and the Community Path extension (if built along the Green Line extension it will get good use). Asks for a second Green Line branch running alongside the Lowell commuter rail line to Ball Square and beyond. Asks for a bicycle and pedestrian connection across the Amelia Earhart Dam (linking with Everett, link to Assembly Square station). Cites the disproportionate share of the burden of the regional transportation facilities with little benefit. Compare with Brookline, Cambridge, Newton, and Quincy for service.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Sara Burke	Dorchester resident	Public transit should be cheaper, more direct, safer, more pleasant, more frequent, faster than driving. Aim high! Suggestions: no fare increases; make all T vehicles handicap accessible; fix up the stations (particularly Ashmont, Shawmut, Fields Corner, and Charles stations, as well as Park Street); extend the Green Line to Union Square and construct an Orange Line stop at Assembly Square; extend the bike path in Somerville; improve the use of carpool lanes and carpooling; require the Big Dig people to issue a public apology and build a real Silver Line.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
William Gage	Somerville resident	Supports Green Line to Union Square (have waited 20 years) and Orange Line stop at Assembly Square (key to high-density development). Many residents are transit-dependent. Bus service is sporadic and very undependable (refer to the CT2 bus situation, stuck in traffic on Washington Street). City needs reliable, comfortable, fixed-route transit options.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
David Hart	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements, and the Community Path extension. Refers to the information prepared by STEP supporting these projects.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in

Name	Affiliation	Comment	MPO Action
			UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Fred Berman	Somerville resident	Supports Green Line to Union Square (state committed to build extension to MA DEP and federal government, funds missing from Plan, funding sources must be addressed), Orange Line stop at Assembly Square (currently unfunded, marginal cost would be small), Route 28 improvements. There should be a better balance of transportation benefits and burdens: I-93 has increased air pollution 10 times the legal limit, created congestion at Rouge 28, divides the city; there are 7 rail lines and one stop, the Boston Engine Terminal, poor air quality from transportation vehicles, other environmental burdens.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Finance chapter revised to address funding of SIP commitments.
Brad Friedman	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square, and the Community Path extension. Expand and improve public transportation in Somerville. Dense population, but only one transit station. Would improve air quality and access, especially for those without cars.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Caitlin Feeley	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements, and the Community Path extension. Concerned about the lack of public transportation. Have to ride bicycle, but this is dangerous on the busy streets. Need improved MBTA service: for an affordable commute, job development, environmental reasons. Somerville is not treated with justice regarding burdens (environmental).	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Marsha Gerstein	Somerville resident	Supports Green Line to Union Square (look at Davis Square experience) and Orange Line stop at Assembly Square (support offices and restaurants, reduce traffic and pollution). Transit would generate prosperity, reduce traffic, raise property values, add to tax base.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Louana H. Evarts	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements. Somerville is uniquely burdened: have impact from transportation infrastructure and few benefits while paying comparable taxes and fares. City has highway congestion, air pollution, noise, from through-traffic, has deteriorating bridges. EJ issues not addressed. Somerville is one of Boston's nearest neighbors, cousin.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP.
Jane Sauer	Somerville resident	Supports Green Line to Union Square and on to Medford Hillside, Orange Line stop at Assembly Square, Routes 28 and 99 corridor improvements, and the Community Path extension. Also supports the Urban Ring Phase III (entirely rail-based), enhancement of pedestrian/bike routes with rapid transit, and adding rail stops on the Lowell Line. Somerville is especially deserving: is underserved by transit and overburdened by transportation infrastructure; residents are highly transit dependent (29% of workers commuting by transit, second only to Boston), high ratio of multi-family housing, high ratio or renters; excess noise and air pollution from I-93, in excess of safe limits on air toxins and may be in violation on fine particulate pollution, exacerbated by heavy pass-through traffic; Environmental Justice issues, second most burdened in state in pollution per square mile, most densely populated city, with second most immigrants per square mile, many low income.	Green Line to Medford Hillside, Assembly Square, and Urban Ring I & II included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Sarah Almer	Cambridge resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square. Traffic congestion is serious and should be relieved; people in the area deserve better	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment

Name	Affiliation	Comment	MPO Action
		transportation (often have longer commutes than people from far-away suburbs); and would bring economic revitalization, reduction in air pollution, resolve the basic inequity of level of service compared to other communities.	to be studied – included in UPWP.
David Dahlbacka	Somerville resident	Supports Green Line to Union Square and on to Medford Hillside (multi-ethnic neighborhood, would bring benefit to EJ community, is an air quality commitment, meeting this commitment should be demonstrated, need to take action to meet deadline), Orange Line stop at Assembly Square (air pollution serious, area isolated, would bring tax revenue, jobs, and open space, look at the Davis Square experience), Routes 28 and 99 improvements (12 developments planned that would double its traffic burden, need traffic mitigation, not widening, reduce traffic and work with Everett, Medford, Charlestown, and East Cambridge), and the Community Path extension (additional mitigation for traffic and pollution). Also asks for additional commuter rail stops on the Lowell Line (should be enough ridership to meet the state's 8,000 boarding requirement); and light rail for the Urban Ring (need a single-seat system, violates Environmental Justice to spend highly on transit in wealthy communities and less on poor ones. The lack of service is a violation of equity considerations for Environmental Justice.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Jessica Mele	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements, and the Community Path extension. These would help address pollution and congestion, create jobs and ease the tax burden in this densely populated city. Cites transportation burdens, high transit use/dependency, and high proportion of immigrants as reasons.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
David Fitzgerald	Somerville resident	Supports Green Line to Union Square and Medford (MBTA plan to use existing rail lines and construct a stop near Medford and School Streets would be beneficial, but not as much as Union Square) and Orange Line stop at Assembly Square (need a real commitment so that development can advance).	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Alicia Duff	Somerville taxpayer	Supports Green Line to Union Square (compare with Davis Square experience, would provide direct service to densely populated EJ population, reduce traffic, provide jobs, stimulate the economy, grow the tax base, improve air quality. Eight lines go through Somerville with only one stop. Compare assessment and service with Newton's.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Sylvie Laborde	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square. Many people work in Boston and Cambridge and currently access is difficult. The bus system is pretty good, but can be slow and late due to traffic congestion.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Kel and Dave Rengel		Support Green Line to Union Square and Orange Line stop at Assembly Square, Route 28 improvements (keep traffic off), and the Community Path extension.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Matthey Yospin	Newton resident	Supports Green Line to Union Square (compare with Davis Square experience, would provide direct service to densely populated EJ population, reduce traffic, provide jobs, stimulate the economy, grow the tax base, improve air quality. Eight lines go through Somerville with only one stop. Compare assessment and service with Newton's.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Jacquelilne Hogan	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements, and the Community Path extension.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment

Name	Affiliation	Comment	MPO Action
			and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Erica LeBow	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements, and the Community Path extension. Somerville citizens deserve it: pay the same assessment and will use and support the systems. People are hard working and rely on public transportation; have only one transit stop.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Scott Burns		Supports Green Line to Union Square (compare with Davis Square experience, would provide direct service to densely populated EJ population, reduce traffic, provide jobs, stimulate the economy, grow the tax base, improve air quality. Eight lines go through Somerville with only one stop. Compare assessment and service with Newton's.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Jason Friedlander	Somerville resident	Supports Green Line to Union Square and Route 28 improvements (make it neighborhood friendly). Somerville heavily burdened by transportation infrastructure; compare with Newton assessments and service.	Green Line to Medford Hillside included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP.
Gisela Schutz	Resident of Dresden, Germany	Need convenient public transportation from Logan to Somerville. Public transportation is way of life in Germany; system is wonderful. Transit access to the suburbs would enhance the quality of life in Somerville area.	Urban Ring I & II included in the Plan.
Michael Terrio	Somerville resident	Supports Green Line to Union Square (also up to Tufts), Orange Line stop at Assembly Square, and the Community Path extension. Many rail lines go right through the city and don't stop (they cause pollution that results in respiratory diseases and lower quality of life; there should be more than one stop in the city; bridge closings disrupt traffic.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Cheri Ruane		Supports Green Line to Union Square (compare with Davis Square experience, would provide direct service to densely populated EJ population, reduce traffic, provide jobs, stimulate the economy, grow the tax base, improve air quality. Eight lines go through Somerville with only one stop. Compare assessment and service with Newton's.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Beth Rosenberg	Somerville resident	Supports Green Line extension and Orange Line station. They are desperately needed and would be fair; have numerous tracks through the city.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Andrew Robertson		Supports Green Line to Union Square (compare with Davis Square experience, would provide direct service to densely populated EJ population, reduce traffic, provide jobs, stimulate the economy, grow the tax base, improve air quality. Eight lines go through Somerville with only one stop. Compare assessment and service with Newton's.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Brian ten Siethoff	Somerville resident	Supports Green Line to Union Square (and West Medford, construct multimodal station on Prospect Street for Urban ring, local bus, commuter rail and/or Green Line), Orange Line stop at Assembly Square (essential for development, opposes "big box"), Route 28 improvements (make it transit- and pedestrian- oriented, boulevard) and Urban Ring Phases I and II and asks that they be given priority in the Plan. Asks that a commuter rail station be built on the Fitchburg Line at Union Square. Use the Fitchburg Line tracks for the Green Line to Union Square extension; in the future a separate Green Line spur along the Lowell Line from Lechmere to West Medford. It is unjust that	Green Line to Medford Hillside, Assembly Square, and Urban Ring I & II included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP.

Name	Affiliation	Comment	MPO Action
		commuters from suburbs have shorter commuting times to Boston than Somerville residents; many are minority and low income.	
Stuart Mendelson	Somerville resident	Supports Green Line to Union Square (service to needy and poor people, create job opportunities, relieve traffic), Orange Line stop at Assembly Square (service to needy communities, allow redevelopment, ease tax burden, create new jobs), and the Community Path (inexpensive, create non-polluting transportation opportunities, recreation and river access). Concerned about air pollution on Route 28 (currently exceeds safe levels); should be an EJ consideration.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
John Bailes	Somerville resident	Supports Green Line to Somerville and Union Square (in planning since 1964, a commitment, needs to be funded and planned), Orange Line stop at Assembly Square (jobs, tax base, access to transit), Routes 28 and 99 improvements planning (a community barrier, dangerous to cross, and expanded bicycle and pedestrian alternatives), and expanded bicycle and pedestrian opportunities, Community Path extension (less hazardous commuting, more enjoyable, reduce traffic, pollution, and noise). City's dense population, air pollution, heavy traffic and trucks, 7 train lines and only 1 stop are reasons for these projects.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Janet Steins	Somerville resident	Supports Green Line to Union Square. Commuting is now very time consuming and expensive to go short distances.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Maya Honda	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square. Somerville deserves better transit service. Commuting is now very time consuming and requires transfers. Air quality is so poor, avoid Union Square. Improve access to environmentally cleaner public transportation and create plans for relieving congestion in Union Square and Route 28.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP.
Jane Bestor	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements (needed now due to pending development). Would bring environmental and economic benefits to the city. Somerville has very little transit service. Projects need to be adequately funded.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP.
Meredith J.A. Porter	Somerville resident	Supports Green Line to Union Square (and other stops at Gilman Square, Lowell Street and Ball Square; would reduce traffic and help residents) and Orange Line stop at Assembly Square (spur economic growth), and the Community Path extension.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Daniel Radov	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square. Somerville's level of service does not reflect the substantial contribution the city makes to the transportation infrastructure.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Greg Hill	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square. Residents are heavy transit users but are under-served.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Gary S. Trujillo	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square. Both projects should be expedited and begun immediately. Compare with the Davis Square experience. Commuter rail tracks run through the city; why should residents have to rely on bus service? Asks for a commuter rail stop on existing lines and extensions of Red and Orange Lines. The low-income residents who use the transit should have	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.

Name	Affiliation	Comment	MPO Action
		improved service.	
David Finlay	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements, and the Community Path extension. Also asks for 3 new commuter rail stops. Somerville's level of transit service does not reflect the substantial burden in transportation infrastructure. Compare with Newton for service and assessment. I-93 results in serious air pollution.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Elizabeth Moran	Somerville resident	Supports Green Line to Union Square. Station is badly needed; would make the city accessible to Boston; now feels isolated; will boost the economy.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Sarah Whiting	Somerville resident	Supports Green Line to Union Square and beyond. Make it a priority. Depends on the transit system, but at night is deterred because of 20 minute walk to the station; transfer at Lechmere also doesn't feel safe. Somerville needs more direct access to transit service; many would benefit.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Holly Gates	Somerville resident	Supports Green Line to Union Square. Please reconsider scheduling of this project so that it will be finished by 2011. Make it a priority. Somerville has highest population density, but not commensurate transit service. The most important investments will be in extending transit.	Green Line to Medford Hillside included in Plan to be completed by the end of 2011. Green Line alignment to be studied – included in UPWP.
Avi Green	Cambridge resident	Supports Green Line to Union Square (meet SIP commitment, serve needy community) and Orange Line stop at Assembly Square (jumpstart development and reduce air pollution). Community bears heavy burden of rail lines without stops; has dense population.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Marjorie Polster	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Routes 28 and 99 improvements (coordinated intercity study), and the Community Path extension. Cites city's history of neglect by the state and federal government on transportation; which has damaged public health and the economy. Somerville needs and deserves transportation improvements: dense population, large immigrant and low-income population, EJ considerations.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Ron Witte	Somerville resident	Supports Green Line to Union Square. The MBTA is critical to people's ability to get to jobs, stores, schools, etc., and this project would bring this access to Somerville; could stimulate local businesses and the future economy.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Susan Fendell, Esq.	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, and Community Path extension. Vital to areas growth, survival, and air quality for the region. Somerville's population density makes it an ideal place to expand transit. Many other benefits: reduced traffic, benefits for retail.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Kat Mitchell	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, commuter rail stops on the Lowell Line, and the Community Path extension.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Mrs. A. D'Arengelo	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square. The MBTA has not been fair to Somerville. The area would be perfect for it. Air quality is	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment

Name	Affiliation	Comment	MPO Action
		bad and nothing is getting done to help. A new line would get cars off the road and improve air quality. Asks for another station near Dilboy on Route 16.	to be studied – included in UPWP.
Paul Goodwin	Somerville resident	Supports Green Line to Union Square (the priority, would revitalize a major area of the city), Orange Line stop at Assembly Square, and commuter rail stops in East Somerville and Ball Square, and expansion of bicycle paths (Community Path extention). Needed to reduce auto trips and bus trips; reduce pollution and congestion.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Mary Antonini	Somerville resident	Supports Green Line to Union Square. Could walk home, no need to take the bus.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Tom Largan	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements, and the Community Path extension.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Lynn Weissman	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Routes 28 and 99 improvements, and the Community Path extension. Also asks for rail-based transit to the Lowell Line neighborhoods. Projects would help local economies, serve social equity, and offer environmental solutions.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Anne Keenan	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square. Long commutes by bus (not on schedule, require connections). Also would welcome plans to control traffic and create green space.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Beverly Schwartz	Somerville resident	Supports Green Line to Union Square and Ball Square and Orange Line stop at Assembly Square (important for the city's ability to generate income for schools), and the Community Path extension. Refers to the Davis Square experience; quality of life improved. City has 7 rail lines and only one stop. Another station is needed.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Stacey Alickman and Claudia Santoro	Somerville residents	Supports Green Line to Union Square and Orange Line stop at Assembly Square. Traffic, pollution, and parking shortages are the result of commuters through the area. Union Square has potential to be a unique destination, bit is dependent on the Green Line extension.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Brad and Helen Pendleton	Somerville residents	Support Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements, and the Community Path extension. Somerville needs better public transportation.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Matt LeClair	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements, and the Community Path extension. Refers to the Davis Square experience. City has been environmentally burdened and impacted by 8 rail lines; only	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in

Name	Affiliation	Comment	MPO Action
		one station. These projects will make the city a tighter community and boost its chance for economic success.	UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Alan Moore and Jane Irwin	Somerville residents	Support Green Line to Union Square and on to Medford, Orange Line stop at Assembly Square, and the Community Path extension. Also support restoration of the Arborway service, continued planning for the Urban Ring, and connecting the 2 Phases of the Silver Line.	Green Line to Medford Hillside, Assembly Square, Arborway, Urban Ring I & II, and Silver Line Phase III included in Plan. Green Line alignment to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Rod Kreimeyer	Somerville resident	Support Green Line to Union Square, Orange Line stop at Assembly Square, and commuter rail stops. I would create new jobs and stimulate the economy; needed as the Big Dig comes to an end.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Rene and David Scott	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements, and the Community Path extension. Please allow Somerville to develop in a manner conducive to economic and environmental sustainability.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Joshua Bernstein	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements, and the Community Path extension.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Jose and Brenda Jodar	Somerville residents	Support Green Line to Union Square. Somerville is densely populated; has only one transit station; pollution and fuel consumption are absurd; commuting by bus adds expense and time (due to congestion). Could use the Concord Line for the Green Line from North Station/Lechmere or the Lowell Line with stops at Somerville High School/City Hall and Tufts in Medford.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Austin Bliss	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square. Supports bike routes and dedicated bike lanes on streets and fixed crosswalks and pedestrian-friendly road design. Would like to see: quieter and less polluting buses and commuter rail trains, Somerville bears an unfair burden of noise and air pollution for other's transportation needs.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Douglas McCarroll	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square. Also asks for commuter rail stations on the Fitchburg line in Union Square and the Lowell Line.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
J. McGann	Somerville resident	Supports Orange Line stop at Assembly Square and Route 28 improvements. Cites possible improvements.	Assembly Square included in Plan. Route 28 to be studied – included in UPWP.
Elio LoRusso	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements, and the Community Path extension. Discussed transportation infrastructure burden and lack of service. Notes the high proportion of immigrants and community's diversity in other areas. Many rely on transit for transportation. These stops will increase ridership and economic opportunities for those most in need and	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates

Name	Affiliation	Comment	MPO Action
		increase revenue for the MBTA.	the alternatives for the Green Line corridor.
Lois Russell	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square. Also asks for more dependable bus service and redesigned bus service that would cover more routes across the city.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Dixie Klein		Supports Green Line to Union Square and Orange Line stop at Assembly Square.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Karen Harvey	Somerville resident	Supports Green Line to Union Square and Orange Line stop at Assembly Square (only public access can transform the site to a thriving city center). The city must be connected to Boston. Why must we rely on cars and buses when the city is so densely populated?	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Miriam Schwartz	Somerville resident	Supports Green Line to Union Square, Orange Line stop at Assembly Square, and the Community Path extension. Also asks that three commuter rail stops on the Lowell line be created. Discusses Somerville's demographics (population density, density of multi-family houses, proportions of immigrant and low income residents) and the environmental, air pollution impacts of 7 rail lines, the Boston Engine Terminal, traffic congestion. These problems would be addressed by the listed projects. Somerville is underserved by transit; advancing the projects is fair.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
James McGinnis	Somerville resident	Supports Green Line to Union Square (historically a transportation hub, ready for revitalization, many small businesses would benefit, create jobs, increase tax revenues, serve EJ population), Orange Line stop at Assembly Square (essential to vision of mixed use development, would help the tax base). Also asks that three commuter rail stops (Ball Square, Gilmore Square, and Central Square) on the Lowell Line be created (would shorten commutes for many residents, better access for Tufts, less costly way to satisfy SIP commitments than Green Line to Medford Hillside). These projects would benefit the city and the state. Somerville bears a disproportionate share of the region's transportation burdens, economic and environmental (rail lines cut through the neighborhoods, disrupt traffic, barrier to north/south movements, slow emergency services; has 2nd highest environmental burden in the state, high rates of asthma and other long diseases.) Compares assessments and services with Newton's. Other economic impacts are for police and fire, response to crashes, repair of damage done to roadways. Discusses Somerville's demographics (population density, density of multi-family houses, proportions of immigrant and low income residents). Bus service is infrequent, unreliable, late, slow, lacks protected waiting areas, and requires transfers.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Thirty form responses with individual comments		Form asks residents to submit comment to the MPO and support Green Line to Union Square, Orange Line stop at Assembly Square, Route 28 improvements, and the Community Path extension.	
Marie Bwerley		Supports Union Square station.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Jenne Smith	Brookline resident	Agrees with form's statements.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of

Name	Affiliation	Comment	MPO Action
			the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
No Name		Agrees	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Aaron Miller		Supports Union Square station	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Seawall Keeley		Supports Union Square station.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Name illegible		Supports Union Square station.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Raphael Justewicz	Somerville resident	Supports Union Square station.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Joel Burgel	Lincoln resident	Supports Union Square station.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Michael Bloom	Somerville resident	Need transit to reduce traffic and smog.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Shelia Walsh	Somerville resident	Supports Union Square and Assembly Square stations.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
Andrew and Joan Puccino	Somerville residents	Support Union Square and Assembly Square stations. It is unfair that so many people in Somerville are unable to access a quick trip into Boston. Will reduce pollution, improve mobility.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment to be studied – included in UPWP.
J. P. de Menzes	Somerville resident	Supports Union Square station. This is very important to residents in the area.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Eduardo Guttierrez	Somerville resident	Supports Union Square station. Many immigrants would benefit; depend on transit; can't afford a car.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
George H. Berry	Somerville resident	Agrees with the form's statements.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Isabel M. Palhinha	Somerville	Supports Union Square station. Hopes this will be a priority.	Green Line to Medford Hillside included in

Name	Affiliation	Comment	MPO Action
	resident		Plan. Green Line alignment to be studied – included in UPWP.
Joanne G. Bowman	Somerville resident	Supports Union Square station.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Richard Pimental	Somerville resident	Supports Union Square station. Might help energize the Square's economy. This is important to this low-income community.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Mary MacDonald	Somerville resident	Supports Union Square station. It would reduce my (and others') commute time.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Julia Crozier	Somerville resident	Supports Union Square station. Somerville deserves service comparable with Newton.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Karen Natale	Somerville resident	Supports Union Square station.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Kristopher M. Day	Somerville resident	Supports Union Square station.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Bob Nesson	Somerville resident	Agrees with form's statements. Somerville is underserved by rail transportation. Projects would reduce pollution, dependence on autos, better serve low-income residents, and foster economic prosperity.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
Alex Pirie	Somerville resident	Agrees with form's statements. Important for economic success of Metropolitan area. Somerville should be on a par with Newton and Cambridge for service.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.
J. Pathinale	Somerville resident	Supports Union Square station.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Clay White	Boston (Jamaica Plain) resident	Supports Union Square station.	Green Line to Medford Hillside included in Plan. Green Line alignment to be studied – included in UPWP.
Rose D'Caterino		Agrees with form's statements. Time is of the essence.	Green Line to Medford Hillside and Assembly Square included in Plan. Green Line alignment and Route 28 to be studied – included in UPWP. Community Bike Path will be one of the considerations of the MBTA as it evaluates the alternatives for the Green Line corridor.

Name	Affiliation	Comment	MPO Action
Summary of Workshop Discussions on the Plan		All participants were encouraged to submit written remarks; some did so.	
Waltham Workshop		*Co-sponsored by the Waltham Alliance to Create Housing and the Waltham Community and Neighborhood Association*	
37 members of the public participated in the sessions		What projects will benefit Waltham? How is funding allocated? There is little planning between the New England states The transportation improvements should not be Boston-centric. How is electrification of transit being built into the system? Transportation planning is needed to be prepared for the Democratic National Convention Waltham has a large low income and low income minority population. Their needs have to be considered. There are several large institutions (such as the Fernald School, Met State, MacLean Hospital) in Waltham that are being revitalized for mental health or related services uses or redeveloped for housing that will need public transportation. Intra-community and inter-community shuttles are needed. Private shuttles could serve the apartment complexes. People want an integrated system. The MPO should be promoting public transit in innovative ways. A percentage of jobs related to these transportation projects should be set aside for women and minority participation.	These comments and questions were reviewed by the MPO and were taken into consideration during the development of the 2004-2025 Transportation Plan.
MPO Open House			
25 Members of the Public Participated		Participants viewed informational materials and engaged staff and MPO members in informal discussions. Some were interested in the process. Others were interested in promoting a specific project.	The participant's comments, questions, and discussions were reviewed by the MPO and were taken into consideration during the development of the 2004-2025 Transportation Plan.
Mattapan Workshop		*In conjunction with the Mattapan Community Development Corp.*	
15 Members of the Public Participated		What is the schedule for clean buses in Mattapan? Assign all clean buses to this area. Transportation is a pass-through service here. Lots of through traffic. The trains don't work. They are unheated in winter, air conditioning broken in summer, no handicapped access, too jerky, hard to get to, no canopies over the minihigh platform. Access and comfort are not considerations for this neighborhood. What projects would serve the Mattapan area? We have to renovate the Mattapan MBTA station. We have to work with the MBTA to do that. The station is a trip 100 years in the past. It is antiquated and not part of a modern transportation system. We have an underutilized parking lot and a city-owned lot that is full. There is no handicapped access. The MPO needs to address the traffic problems in Mattapan Square.	These comments and questions were reviewed by the MPO and were taken into consideration during the development of the 2004-2025 Transportation Plan.

Name	Affiliation	Comment	MPO Action
		We want the new vehicles and modernized stations, especially Mattapan Station, mentioned in the Plan and in the TIP. This is the consensus of the community's economic development group. The Blue Hill Avenue corridor is the center of a major epidemic of asthma. We still have diesel buses. We want the clean buses routed here. Upgrade the Blue Hill route to Silver Line status. Extend the Silver Line from Dudley to Mattapan Square. We need the Fairmount Line project to move forward. Electrify the Fairmount Line. Replace the diesel locomotives proposed for the Fairmount Line with electric vehicles. Make the Neponset River path a multi-use trail. We are 48th in the country for use of rail to trail funds. Can we allocate some here to connect Mattapan Square with Neponset? The trail should link with the Blue Hills. It is in our master plan. The community should become active and vocal advocating for its transportation needs. Make the Fairmount Line a high priority for the community. It feels like someone is dragging feet on the Mattapan station upgrade project. Roxbury, Mattapan, and Dorchester provide twice the number of riders and we still don't get the service and improvements we need. Roxbury was supposed to get a subway line when the MBTA took down the Orange Line. Instead they stuck a bus here. It is almost offensive to hold these meetings when there is no funding for projects. Extend the Silver Line to Mattapan Square. The only way you get anything is to speak up and by getting masses of people working together. It's about using your voice. Dorchester gets Red Line station upgrades and representatives for each station and Mattapan gets nothing. The Mattapan station needs lights, a collector's booth, security, fare collector. We want something we can be proud of. Restore the footbridge over the Fairmount Line. Kids cut the fence and cross the right-of-way. It's dangerous! We were told we were getting a steel fence (when the Mildred School was built) and haven't. Not having the bridge cuts off community access to the community center. The community gets conflicting stories on the progress of the Fairmount Line. We need a feasibility study. There should be a Fairmount Line stop at Cummings Highway. What is the progress on the Urban Ring project?	